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DIET IN TUBERCULOSIS.*

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Fresh air, diet, rest and exercise, the essential contributory factors in the treatment of tuberculosis, are so intimately associated, one dependent on the other, that a consideration of one must necessarily, to a certain extent, concern the others. Owing, however, to our increased knowledge and consequent change of view in the treatment of this disease, it is now possible to more accurately estimate the importance and influence of the various factors concerned. As a result a prognosis, which formerly was regarded as bad, has gradually given way to one far more encouraging and hopeful.

Some twenty-five centuries ago Hippocrates wrote: "The greatest and most dangerous disease and the one that proved fatal to the greatest number was the consumption." In his aphorisms on prognosis (Nos. 11, 12, 13 and 14) in this disease the seriousness and unfavorable outcome is clear and distinct. Many of the older authors as Celsus, Pliny and Galen, as well as many in the following centuries, held similar opinions. All progress was effectually blocked during the Dark Ages, as the existence of epidemics and disease was considered due to the visitations of an angry God, and any attempt at investigation and resistance was held by the existing theology as opposing the will of God and as sacriligious. This condition continued until the dawn of the Renaissance, when postmortems and dissections were permitted, which eventually led to the formation of our present knowledge. Latham gives credit to a Scotch physician, 1747, for first expressing in unmistakable terms a more favorable prognosis and "supported by the incontestable evidences of the results he had obtained, that hygiene and diet are most important factors in the treatment of tuberculosis, and that climate and medicine are only

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to be considered as more or less precious adjuvants." While this quite closely approximates the prevailing opinion of the present day, it required years of study and observation to determine its accuracy. We find, for instance, Sir Thomas Young, in 1815, said: "Even with the utmost powers of art perhaps not more than one in a hundred will be found curable."

Hector Mackenzie quotes Dr. C. J. B. Williams as follows: "My general recollection of the histories of the developed disease at that time, 1830-1840, is that of distressing tragedies, in which no means used seemed to have any power to arrest the malady, and life was rarely prolonged beyond the limit of two years assigned by Laennec and Louis, as the average duration of life of the consumptive." He goes on further to say: "In the next period of ten years, 1840-1850, a marked improvement took place in the results of treatment, apparently in connection with the allowance of a more liberal diet and the habitual use of mild alterative tonics."

About this time George Bodington, 1840, wrote an essay "On the Cure of Pulmonary Consumption on Principles Natural, Rational and Successful," in which he emphasized the importance of a generous diet, fresh air, day and night, "together with systematic arrangements with regard to exercise and general treatment, and the watchfulness daily—nay, almost hourly—over a patient by a medical superintendent." His statements were based upon personal observation extending over several years, but his views were severely criticised and the abusive treatment rendered him is hardly conceivable in the light of recent development. He was considered demented, his patients driven from him, and by the irony of fate his hospital was converted into an asylum for the insane. While to Bodington must be given the credit of the first attempt at establishing a tuberculosis hospital, Hermann Brehmer must be considered as the real founder of our modern sanatorium treatment of tuberculosis. In 1859, through the assistance of his friends, Humboldt and Schönlein, he was able to open his sanatorium. Then followed years of opposition, criticism and abuse, but, self-content with his own convictions, he obstinately persevered, and in 1886 published the result of his work, demonstrating to the world what might be done in the treatment of tuberculosis. While some of his ideas have been found wanting, in the main they were correct, as the favorable reports from the numerous tuberculosis sanatoria and camps attest.

During these years of clinical observation, pathology and bacteriology were not idle. Laennec, who died from consumption in 1826, determined that phthisis resulted from the formation of tubercles in the lungs. Carswell wrote in 1836: "Pathological anatomy has never afforded stronger evidence of the curability of a disease than in the case of phthisis." This finding has since been amply verified by numerous observers. The determination of the essential etiology was made possible by Pasteur's labors, by the inoculation experiments of Klenke, 1843, and Villemin, 1865, which finally resulted in Koch's great discovery, 1882, of the tubercle bacillus. Thus we can trace the slow but gradual evolution from

a hopeless to a highly favorable and curable disease and as a result of proper hygienic conditions, diet, climate and medicine. Of the relative importance of these factors, it is now pretty generally agreed there is no specific drug or laboratory product; that a special or particular climate is not essential, but that hygiene and diet are most important.

R. W. Phillips, in this connection, has remarked: "The selection of a suitable dietary for the patient suffering from pulmonary tuberculosis is of the first moment. In no disease is it more true that the dietary must be selected with a view to the individual need of the patient. In no disease is it more certain that benefit will accrue according as care is expended in the selection. Nowhere is ignorance or carelessness more likely to prove disastrous, both immediately and ultimately, to the patient." Flick voices the same opinion when he says: "Tuberculosis can be treated anywhere. Climate has practically nothing to do with the matter. . . . All that is necessary is life in the open air, proper food, well-regulated and carefully-disciplined conduct, and, in more advanced cases, properly directed rest and exercise." Dettweiler was once asked if he used drugs much in the treatment of this disease, and in reply he pointed to the kitchen and said: "There is my pharmacy; there is my chemist shop."

In a discussion at a meeting of this society, J. W. Pettit made these remarks: ". . . but as between good food properly prepared and a fairly good air I would say that good food is more important. I would rather undertake to treat a case of tuberculosis in the heart of Chicago, where the air is bad, with good food, than to put out anywhere on a prairie or plains of Illinois, give him all the fresh air possible, and cheapen the food or have it prepared unscientifically. I believe that is not too strong a statement to make."

In reviewing the different dietaries that have been proposed, used or are now employed, one is confused by the conflicting statements. It is hardly to be presumed that the opinions of earlier writers, before the real nature of the disease, the food values and amounts required were known, could have the accuracy and weight of the present day. A discussion of the various diets is not necessary or is it desirable, but a consideration of the governing principles is far more important, for, no matter what the diet, perfect or imperfect, these must always remain the same. Physiology, chemistry and more recently studies in metabolism have succeeded in elucidating this subject and correcting many false suppositions. To better appreciate the conditions present and the objects to be accomplished in the feeding of tuberculous patients, a proper conception of the normal is necessary.

Physiologists divide foodstuffs into different classes.

1. Proteids, the nitrogen-containing foods and spoken of as the nitrogenous foods. The essential use of the proteids is to furnish material for the formation of new proteid tissue, to repair the old and also to furnish energy. While the different foodstuffs are necessary for proper nutrition, proteids are absolutely essential. If an animal is fed on a non-proteid diet, emaciation develops and death finally results. The

same takes place in man in case of starvation, in disease and on an improper diet.

2. Fats, which include not only such articles of diet as commonly designated as "fat," but all of the oils, both animal and vegetable. Their essential use is the production of energy and heat and as proteid-sparers. They are important as the body stores up its reserve force chiefly in the form of fat. They contain no nitrogen.

3. Carbohydrates, which include starches, sugars, gums and the like. Their essential use is similar to the fats. They contain no nitrogen. Relatively they are less valuable than the fats, but their cheapness, greater ease of digestion and destruction make them a chief portion of our food.

4. Water, while it does not furnish energy and heat, is necessary for the various chemical changes going on in the body.

5. Inorganic salts, generally obtained in the food, except sodium chlorid, have the same function as water. The part played by the chlorids in the production of hydrochloric acid is an exception.

6. Accessory articles of food, including stimulants, as alcohol, tea, coffee, beef extracts, and condiments, as pepper, mustard, and the like. These articles act mainly in stimulating the appetite and making the food more acceptable.

Physiology also teaches that, in order to maintain a normal nutrition, certain definite amounts of the various foodstuffs must be furnished and, while they may be varied within certain limits, the best results are obtained when the proper proportions are maintained.

The "average diets," as calculated by different physiologists to represent the average amount of foodstuffs required by the normal adult man of 70 to 75 kilos weight, are as follows:

	Moleschott.	Ranke.	Voit.	Foster.	Atwater.
Proteids	130 grams.	100 grams.	118 grams.	131 gr.	125 gr.
Fats	40 grams.	100 grams	56 grams.	68 gr.	125 gr.
Carbohydrates	550 grams.	240 grams.	500 grams.	494 gr.	400 gr.

Voit's estimates are usually accepted as meeting the normal requirements, and it will be observed that the ratio of the proteid to the non-proteid foodstuffs is approximately as 1 to 5.

In this table 118 grams proteid represents the dry material, not fresh lean meat, for in such there is a large percentage of water. To supply the requisite amount it is necessary to know the composition of the various articles of food. The analyses given by König are as follows:

COMPOSITION OF FOODS.

In 100 Parts.	Water.	Proteid.	Fat.	Carbohydrate. Digestible.	Carbohydrate. Cellulose.	Ash.
Meat	76.7	20.8	1.5	0.3	..	1.3
Eggs	73.7	12.6	12.1	..	..	1.1
Cheese	36-60	25-33	7-30	3-7	..	3-4
Cow's milk	87.7	3.4	3.2	4.8	..	0.7
Human milk	89.7	2.0	3.1	5.0	..	0.2
Wheat flour	13.3	10.2	0.9	74.8	0.3	0.5
Wheat bread	35.6	7.1	0.2	55.5	0.3	1.1
Rye flour	13.7	11.5	2.1	69.7	1.6	1.4
Rye bread	42.3	6.1	0.4	49.2	0.5	1.5
Rice	13.1	7.0	0.9	77.4	0.6	1.0

In 100 Parts.	Water.	Proteid.	Fat.	Carbohydrate. Digestible.	Cellulose.	Ash.
Corn	13.1	9.9	4.6	68.4	2.5	1.5
Macaroni	10.1	9.0	0.3	79.0	0.3	0.5
Peas, beans	12-15	23-26	1 1/2-2	49-54	4-7	2-3
Potatoes	75.5	2.0	0.2	20.6	0.7	1.0
Carrots	87.1	1.0	0.2	9.3	1.4	0.9
Cabbage	90	2.3	0.5	4-6	1-2	1.3
Mushrooms	73-91	4.8	0.5	3-12	1-5	1.2
Fruit	84	0.5	..	10	4	0.5

Meats vary considerably in their composition, as may be observed from the following analyses from König and Atwater:

	Water.	Proteid.	Fat.	Carbohydrate.	Ash.
Beef, moderately fat	73.03	20.96	5.41	0.46	1.14
Veal, fat	72.31	18.88	7.41	0.07	1.33
Mutton, moderately fat	75.99	17.11	5.77	...	1.33
Pork, lean	72.57	20.05	6.81	...	1.19
Ham, salted	62.58	22.32	8.68	...	6.42
Pork (bacon), very fat	10.00	3.00	80.50	...	6.5
Mackerel	71.6	18.8	8.2	...	1.4

Another fact must always be considered in estimating the nutritive value of food, and that is its digestibility and absorption, which can only be determined by experiments. All foods vary in this respect, but is most marked in the proteids. It has been determined that in meats 2 to 3 per cent., in milk 6 to 12 per cent. and in vegetables 10 to 40 per cent. of the proteids fail to be utilized and consist of waste. Any dietary which does not consider the body weight, the work done by the individual and the calories contained in the food must be considered unscientific. According to Voit and Rubner, the healthy adult requires daily approximately 3,000 calories and as determined consist as follows:

Proteids	120 × 4.1 =	492 calories.
Fat	50 × 9.3 =	465 calories.
Carbohydrates	500 × 4.1 =	2050 calories.
		3007 calories.

Determinations show that an individual at rest requires per kilogram of body weight from 30 to 35 calories; at light work, 40 calories per kilogram. Since a kilogram is equal to about 2 1/5 pounds, every pound of body weight requires at rest 15 calories; at light work, 18 calories.

The following table from Hector Mackenzie gives the caloric value and amount required to meet the normal demands:

	Number of Calories in 1 Kilo.	Amount Necessary to Supply 3,000 Calories.
Lean beef	980	3.1 Kilo.
Fat beef	3,270	0.9 Kilo.
White bread	2,290	1.3 Kilo.
Potatoes	660	5.0 Kilo.
Sugar	3,830	0.8 Kilo.
Milk	670	4.5 Litres.
Skim milk	390	7.5 Litres.
Butter	7,560	0.38 Litres.
1 egg	73	41 Eggs.

The next consideration of importance consists of the changes produced by tuberculosis. Arthur Latham has said: "One of the most marked and constant features of tuberculosis is loss of weight." Quoting from Flick: "Consumption is a wasting disease. Its most striking

feature is loss of tissue. Hence its name. First the fat of the body disappears. Then the muscles begin to dwindle." Cornet calls attention to the danger of absorption of proteids surrounding the tuberculous foci, and then not only inhibiting the natural process of healing, which is due to fibroid changes, but furthers the distribution of the bacilli."

With a knowledge of the normal requirements, the nutritive values of various foods and the changes produced by tuberculosis it is now possible to formulate a dietary more or less scientifically correct. In accomplishing this the excellent experimental and clinical work by Dr. Goodbody, Dr. Bardswell and Mr. Chapman has been of the greatest assistance. Their conclusions are:

"1. Tuberculous patients show very satisfactory results, both clinically and experimentally, when their diets are slightly increased in amount above what they have been in the habit of taking before coming under treatment. It is evident that the state of the appetite gives too low an estimate of their requirements.

"2. Diets of medium proportions, but still large, give the best results, and can probably be continued for an indefinite period.

"3. The digestion both of nitrogen and fats is good even in the case of patients with high fever. The absorption of fats, indeed, is excellent, even when very large quantities are given, e. g., with an intake of 231 to 232 grams 96.4 per cent. was absorbed.

"4. It is noticeable that the patients complained of the least discomfort on those diets which give the best experimental results, whilst the onset of severe dyspeptic troubles usually coincided with a deterioration in experimental results."

They found that their tuberculous patients where the disease was active required daily 70 calories per kilo of body weight and this demand was best supplied by an increase of the fats. When the lung condition improved, better results followed when the supply was diminished to 50 calories. According to their findings, "the most suitable diets for patients suffering from pulmonary tuberculosis that we had the opportunity of observing consisted roughly of about 120 grams of proteids, 140 grams of fat, 300 grams of carbohydrates. In English weight this is equivalent to about 4¼ ounces of proteids, 5 ounces of fats, 10½ ounces of carbohydrates. When these amounts are compared with those of the normal, as determined by Voit, the chief difference consists in an increase of the fats and a decrease of the carbohydrates.

Based on these considerations, Burton-Fanning advocates the following standard dietary in tuberculosis:

	Amount.	Proteid.	Fat.
Meat	5 oz.	1 oz.	½ oz.
Milk	3 pints.	2 oz.	2½ oz.
1 egg	2 oz.	¼ oz.	1/5 oz.
Porridge	Plateful.	½ oz.	.....
Bread	8 oz.	1 oz.	.....
Butter	2 oz.	Trace.	1½ oz.
Potatoes, etc.	4 oz.	.....	.....
Puddings	Plateful	.....	.....
Total about		4½ oz.	4½ oz.

These various items and others of similar nutritive value may be distributed throughout the day, depending upon individual conditions and demands. The following dietary may be taken as a general guide:

7 a. m. Fruit, cereal with cream and sugar, toast or graham gems and butter, jelly, or jam or marmalade; tea, coffee, cocoa, or chocolate. Two glasses of milk and one raw egg.

10 a. m. Two glasses of milk, bread and butter or toast or crackers. One raw egg.

12:30 p. m. Soup; meat, as rare roast beef, pork, lamb or mutton; chicken or turkey or a steak or fish. One or two vegetables, as potatoes, beets, carrots, turnips, peas, beans, corn, spinach. A salad with olive oil. Rice or bread pudding, custard, gelatin with cream and sugar, cheese; ice cream, fruit and various nuts or raisins.

4 p. m. Two glasses of milk, bread and butter or toast or crackers. One raw egg.

7 p. m. Cold meat with bread and butter, stewed fruit and two glasses of milk. One raw egg.

Dr. Albert P. Francine suggests the following dietary for patients with large appetites and good digestion:

7 a. m. One pint of milk and two raw eggs taken in bed.

8:30 a. m. Breakfast. Fresh fruit, cereal, bacon, salmon, herring, or tender steak, chop or chicken; dry toast, wheat bread or corn bread, a pint of milk or cup of coffee, chocolate or cocoa.

10 a. m. One pint of milk and one raw egg.

12:30 to 1 p. m. Lunch (heaviest meal), preceded by half-hour's rest. Thick soups—puree of vegetables, especially the albuminous legumen; a roast and vegetables, bread with plenty of fresh butter, simple desserts with sugar. Rest for one hour.

4 p. m. One pint of milk and one raw egg.

6 p. m. Supper, preceded by half-hour's rest. Light, simple meal, cold meats, light salads, tongue, sardines, etc. Pint of milk or cup of weak tea or cocoa.

9 p. m. One pint of milk and two raw eggs.

9:30 to 10 p. m. Patient goes to bed.

Dr. Alfred L. Loomis gives the following good rules to be observed in eating:

"1. Food should be taken at least six times in twenty-four hours; light repasts between meals and on retiring.

"2. Never eat when suffering from bodily or mental fatigue or nervous excitement.

"3. Take a nap, or at least lie down, for twenty minutes before midday and evening meals.

"4. Take only a small amount of fluid with the meals.

"5. The starches and sugars should be avoided, as also all indigestible articles or diet.

"6. As far as possible, each meal should consist of articles requiring about the same time to digest.

"7. Eat only as much as can be easily and fully digested in the time allowed.

"8. As long as possible systematic exercise should be taken to favor assimilation and excretion; when this is impossible massage or passive exercise should be undergone.

"9. The food must be nicely prepared and daintly served, made inviting in every way."

It is not to be inferred that any dietary, no matter how perfect theoretically, will meet the demands of each and every case. This is a problem demanding individual and careful study. As has been said by Burton-Fanning, "The physician must always be an opportunist." He must determine the individual requirements.

Aside from a properly selected dietary, many contributary factors are important and essential. A good appetite and a proper condition of the digestive organs are necessary. For the best results the food should be the best that the market affords, properly prepared, daintly served, at regular, stated hours, in a light, cheerful dining-room, and with congenial table companions. Regulated exercise or life in the open air is a potent stimulant to the appetite. Constant variations in the dietary must be made. Perhaps no one factor is more destructive to a good appetite than the stereotyped dietaries too frequently found in hospitals and sanatoria. Not only weekly but daily changes are required in order to keep the patient in a state of uncertain expectation. When this is done, many times the repast is taken with a growing appetite. To accomplish this the services of a competent and experienced dietician is indespensable. Such services are only second to that of the physician.

No detail, however small, must be overlooked, for the tuberculous patient, if left to himself, will not take a sufficient amount of food. The advice frequently given, "Eat all you can," is not sufficient. Explicit instructions, eternal vigilance by the physician or nurse, confidence in the treatment and a cheerful frame of mind are all necessary and important.

Unquestionably these conditions can best be obtained in well-regulated sanatoria, but unfortunately, as has been said, "in 98 per cent. of all cases of consumption home treatment must be depended upon." When this is the case, the services of a specially instructed private trained nurse are required, and if such can not be secured or made possible financially, then the excellent advantages offered by the free tuberculosis dispensaries are available.

Individualization in the feeding of the tuberculous has been emphasized and the occurrence of a pyrexia is usually accepted as a clinical indication demanding modification of the treatment, but, instead of a milk and egg or liquid diet, the results obtained by experimental studies, as well as clinical observation, demand rather an increase in the total amount of both solids and liquids. At the same time the amount of exercise must be regulated. According to Francine, "the patients with fever of a continuous type above 100° F. should be confined absolutely to bed." Burton-Fanning says: "The rule generally laid down

is that if the morning temperature is above 98.6°, or that of the afternoon above 100.4°, the patient should be kept in bed." He is even more strict and advises confinement to bed whenever the temperature exceeds 99.5° if the disease is slight and a complete recovery or an arrested condition is desired. In most cases with or without a pyrexia, a period, approximately a week, in bed is advisable when the patient first enters the sanatorium or comes under treatment. The existence of anorexia and dyspepsia, frequently associated with pyrexia, usually rapidly disappear when the patient is at rest and on a full diet. In a small proportion, practically when there is no pyrexia and the conditions are due to actual changes in the stomach or intestines, the amount of food must be reduced or varied in kind.

The coexistence of a diabetes, nephritis or some organic disease of the stomach, bowels or heart constitutes a distinct indication to modify the diet accordingly.

From what has been said the question of a deficient or "starvation diet" and an overabundant or "forced diet" will hardly require further mention. That evil results follow underfeeding is evident, while overfeeding is capable of producing almost as much harm. Generally speaking, the amount of nourishment must be increased. Burton-Fanning considers the following as particular indications for an increase:

"1. The patient's weight is low. It is a good rule to ascertain what was the maximum known weight in health, and to aim to bring him up to a weight which exceeds this by at least half a stone.

"2. Moderate activity of the disease, as evidenced by extension of the physical signs, and especially by persistent fever, affords a distinct indication for reinforcing the patient's nourishment.

"3. Lastly, the actual existence of anorexia and dyspepsia call for increased food if it can be ascertained that they depend on the mere debilitating effects of the lung disease affecting the organs of digestion in common with other parts of the organism."

The following conditions do not necessarily, according to the same author, require an increase in nourishment:

"1. There is the obvious case of the patient who has already passed his highest known weight in health, or the normal weight for an individual of his height and build.

"2. Patients presenting evidences of disease of the abdominal viscera in the form of tuberculosis or of albuminoid degeneration.

"3. Patients whose pulmonary tuberculosis is of old standing and associated with obvious development of fibrosis which impedes the circulation and interferes with digestion.

"4. Patients manifesting marked enfeeblement of the heart.

"5. Patients in whom the failure of appetite and of digestion is judged to be in excess of what would proceed from general constitutional weakness.

"6. The subject of acute tubercular processes, whose fever is very high."

The practical or clinical test of the influence of diet consists of the effect it has upon the weight, temperature and pulse. Latham says: "The weight of the patient affords, within limits, the best guide as to whether the diet is a suitable and satisfactory one and also as to the general progress of the patient." This necessitates the keeping of a clinical record, and the careful determination at stated intervals of the factors concerned. Weekly weighing is usually sufficient, but must always be made under the same conditions and circumstances as near as possible.

In the sanatorium this is easily accomplished, while in private or dispensary work the small record or "class book," as suggested by Minor of Asheville, is of great service. It serves not only as a clinical record and a guide in the treatment, but acts as a stimulant to the patient. A gain of several pounds a week is not infrequent during the first few weeks of treatment. This occurs more particularly in favorable cases, where the pyrexia is not excessive, no anorexia or dyspepsia present and when the appetite is good. Much of the increase in weight is due to the increase of adipose tissue, and as the exercise is increased and the nourishment decreased during the stage of "hardening" the gain is not so rapid. An increase of about two pounds a week is a good general average. The appreciation of the importance of increasing the patient's weight has resulted in the development of special forms of treatment. In some, one or two varieties of food constitute the chief form of nourishment. A consumptive should not be given one kind of food to the exclusion of all others. If this be attempted, to supply the necessary daily demand according to the caloric value, the patient must consume of milk alone some five or six quarts; eggs, forty to fifty, and beef, about seven pounds.

The importance of milk in feeding the consumptive is expressed by Stokes when he says: "Milk alone is of more value in this disease than the whole materia medica." Francine says: "Milk and eggs are the essential part of the diet when a 'diet' is called for, and under no circumstances, or only the most exceptional, should they be omitted." When the patient is informed of the importance and necessity of taking milk and eggs in the prescribed amounts, that his life depends upon it, as a rule but little difficulty is encountered. Too often the physician's zeal leads him to prescribe or sanction an increase beyond the necessary demand or reasonable limits, and soon the patient develops a dislike for all kinds of food. The milk should be fresh, rich, unboiled and taken slowly at stated hours in definite amounts. If distress is produced, lime-water, sodium bicarb. or an aerated water may be added.

Eggs are best given raw, preferably after meals and lunches. The egg should be broken into a glass, without breaking the yolk, and then the juice of orange, lemon or a small amount of wine added and the entire amount taken much in the fashion of swallowing an oyster. Some prefer taking the milk and eggs in the form of eggnog. In whatever form not less than three pints of milk and four eggs should be consumed daily—this in addition to the other food. A word of warning is also necessary in reference to employing special articles of food and drugs. Cod-liver oil, pure or modified, may be tolerated by some, but, on the whole, it

should be classed with creosote, guaiacol and the like, relics of the past, for they too frequently produce gastric disturbances, destroy the appetite and defeat the object for which they are given. A good bitter tonic, when indicated, will accomplish much more.

In conclusion, let us remember the aphorisms of three of the masters of medicine:

"Such food as is most grateful, though not so wholesome, is to be preferred to that which is better though distasteful."—(Hippocrates.) "More importance is to be attached to the desires and feelings of the patient than to doubtful and fallacious rules of medical art."—(Sydenham). "Physicians appear to be too strict and particular in their rules of diet and regimen; too anxious attention to those rules hath often hurt those who were well and added unnecessarily to the distress of the sick."—(Heberden).

DISCUSSION ON THE PAPER OF DR. TICE.

Dr. E. H. Butterfield, of Ottawa:—Dr. Tice has well stated in his valuable paper that a consideration of the governing principles are of far more importance than a discussion of the various diets in pulmonary tuberculosis. There is no problem more difficult oftentimes than the correct feeding of the individual tuberculous patient. The greatest diversity exists in the power of assimilation even in the individual case during the progress of the disease. Digestion and assimilation do not always go hand in hand, and too much food may add alimentary disturbance to an existing specific intoxication. Indiscriminate stuffing of tuberculous patients should give way to systematic dieting. The activity and extent of disease, the digestive capability, the personal dietetic likes and dislikes, should be considered. Great care should be exercised in the selection of diet for a patient who, as the result of treatment, has reached or passed his highest known weight. Then, again, if this be associated with rest, the original diet found suitable for a patient considerably under weight, and with active lesions, should be reconstructed more upon the lines of what would be suitable for the same person in perfect health. Anorexia, dyspeptic symptoms and vomiting are much more frequently met with than when working with large diets, than when more moderate amounts of food are given. The appetite must be consulted. It is sometimes well to humor the whims of patients than to try to combat them, and one is soon convinced then that an inflexible rule can no more be enforced for dieting than for medication. Some patients have a decided aversion to milk, and say they can not take a drop. A little tact and diplomacy is necessary here. It is wise to begin with small amounts, a half ounce or less, gradually increasing this until the patient is able to take three or four pints with very little inconvenience. Raw eggs may be administered in connection with the milk. If these are not very well borne, milk can be used as a vehicle, the egg beaten up and incorporated with the milk in the form of eggnog. Grape or lemon juice are convenient and palatable vehicles. There are few forms of food more fatting than milk and eggs, and none which will fill so well the general indications in furnishing a variety of nutritive aliment.

Dr. Ethan A. Gray, of Chicago:—Inasmuch as every case of tuberculosis is a definite problem, we have to have some way pointed out to us in order to solve it, and one way of solving the problem is by improving the diet. We have to deal sometimes with people who can not go to sanatoria, who can not go to Denver, or other point in Colorado, to Arizona, or elsewhere. They have to be treated at home. We get many of these cases in our dispensary work. We get patients who, perhaps, have been to Colorado, and while there have lost twenty or forty pounds. They are pretty well down and out perhaps. Now, we endeavor to build up the appetite of such people, who can not live on climate nor air, but by giving them a combination of climate, good Illinois fresh air and an abund-

ance of good food we can accomplish great good. Of course, at the same time, unless these patients have extensive cavities in the lungs, we will see great improvement following proper feeding. In some cases it may be necessary to resort to forced feeding. A patient who is reduced to 80 pounds, and who may run up inside of thirty days to 115 pounds, must have had a liberal and forced diet.

As to the gain in weight, there is another point we have to consider, otherwise we will be led astray. The scales will tell you much, but unless the weekly gain in weight is commensurate with the movement in other symptoms, the diets are of uncertain quantity. There must be more or less reduction in temperature, some reduction in the amount of expectoration, and more or less general elevation of spirits. There is another thing which I should like to have brought out, and that is, in taking care of such a patient, in laboring with him, you must use the personal element. You can do more with that than you can with your tonics. The personal element always counts.

Dr. Tice (closing the discussion):—I have but little to add to what I have already said. One idea I tried to impress upon all was the necessity of studying each case. I think it is absolutely impossible to lay down any rules for the feeding of consumptives or any other class of patients and expect every patient to be benefited. It is necessary to study each individual case and find out what the requirements are, and this is one great advantage of sending patients to a well equipped and properly conducted sanatorium, where they are under daily observation, where they can be watched not only mornings and nights, but practically all day long, and simply meet the conditions as they may arise.

CLIMATE AS A FACTOR IN THE TREATMENT OF TUBERCULOSIS.*

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I fear that I shall not tell you much to-night that is new, but as we all realize the medical profession must often be reminded of what it already knows, and if I bring to your attention facts long recognized, but which have by many been recently neglected, I shall not deem my time wasted. Our profession is proverbially slow in its acceptance of new facts or theories, but very often we go to the opposite extreme when once we are convinced. An excellent illustration of this fact is the history of tuberculin. We can not look back at the action of the profession with this agent with any pride. The ridiculous over-enthusiasm and hysteria the profession exhibited, first in accepting, and then rejecting this valuable agent, resulted in retarding its use for almost twenty years, and but for the fact that some of our professional brethren were not quite so emotional, it probably would have been entirely discarded.

We are now witnessing a somewhat similar exhibition as regards the climatic treatment of tuberculosis. As long as we have history there has been a belief in the value of a change of climate for the tubercular patients. Celsus recommended sea voyages and a residence at the sea shore in phthisis. Galen recommended hilly districts, combined with the use of milk, while the elder Pliny advised a residence in the pine woods, advice which, with variations, has continued to this day. In more recent

* Read before the Englewood Branch of the Chicago Medical Society, July 7, 1908.

years the physician often thought his duty done when he had made the diagnosis and advised the patient to go west, an absurdity that no one will attempt to defend, though the thousands of cures still living show that it was the best they could have done with the state of knowledge, say twenty years ago.

In 1859 Brehmer established the first sanatorium for tuberculosis at Goebersdorf, and while some of his views were untenable, yet his institution was certainly the foundation for all the sanatoria and open air treatments that have followed. In 1884 Trudeau established the first open air sanatorium in America at Saranack Lake, N. Y., and to my mind has developed an institution that in technique is superior to any in Europe, where I visited some twenty places during my year's stay. Each of these pioneers had the greatest difficulty in having their views accepted, as is evidenced by the fact that it is only in the last few years that they have found anything like general acceptance, though as noted, Trudeau has been treating on those principles for over twenty-four years. But when the profession finally were converted to this faith, they were not satisfied to observe good old Presbyterian or Congregational conservatisms and decorum, but they became shouting Methodists; indeed, by the drum beating policy followed by some, I might compare them to the Salvation Army. This state of over-enthusiasm in the late acceptance of these old truths is perhaps best evinced by the ridiculous assertions one sees and hears almost every day now, regarding the curability of this dread disease.

We do not speak of cures in cancer under five years, and we should wait twice that long for a tubercular case, but members of our profession, whose experience with outdoor treatment in many cases is limited to two or three years, and a dozen or so cases, are now informing Trudeau, King, and the world at large that sanatorium treatment is unnecessary, and that change of climate is a delusion and a snare, this by gentlemen whom it took twenty years to convince. I do not wish to detract in any way from the great good that has been and is being done by the home treatment of tuberculosis or by sanatorium treatment in the home climate, but I do want to warn you not to be carried away by over-enthusiasm as some seem to be, and to ask you to take each at its real value.

For the present at least we must treat most cases at home simply as a matter of finances, and for the same practical reason it is possible that our state or municipal governments should build local sanatoria. but I want to remind you that home treatment is only a substitute for the sanatorium treatment, while a sanatorium in the home climate is only a substitute for a sanatorium in a favorable climate, that the fewest cases will get well under the first conditions, and that the most cases will get well under the last. We do not claim a specific when a half dozen cases of typhoid get well under some new treatment, and no more should we think that because we have cured a few cases of tuberculosis in their own back yards that it is necessarily the most desirable and best treatment.

If you do, you are going to lose lives that could otherwise have been saved, and while a santorium located in this murky, damp climate will save many, a sanatorium located in a favorable climate will save more.

Flick and a few others have gone so far as to say that there is absolutely nothing in climate. This appears absurd to me, and must to any one who has made any study of climatology, or who has even made a visit to the southwest. We assume that pure air is one of the great factors in the treatment, otherwise we might as well treat patients in the cellar as on the roof, down around the stock yards as well as in the country. Pure air is after all merely a relative term. There is perhaps no absolutely pure air; a slight deficiency in the oxygen or a very small increase in the amount of carbonic acid of the air we breathe may be of considerable importance. We go to great expense to procure pure water. Is it well that we procure the purest air obtainable to go in the diseased lungs of our patients? It is admitted that the purest air is found on the ocean, in the deserts and on the mountains.

Granted pure air, there are other important factors to be considered, for among the three named there is, aside from its purity, a world of difference. The chief of these, I think, can be proved to be: altitude, humidity, and amount of sunshine. The first and perhaps the best proof of the importance of these factors, is the fact that the districts that are notable for either a high altitude, a low humidity, or a high percentage of sunshine, are notably free from tuberculosis, while the countries combining all three are practically free from this disease. The Alps are a fair example of high altitude, while Southern California has a high percentage of sunshine, but only an average humidity owing to the proximity of the ocean. New Mexico, Arizona, Colorado and parts of some other states present a combination of the three, as do parts of Mexico, South America, South Africa and other places.

Knowing that these regions are remarkably free of this disease, it seems natural to assume that they would at least assist in the cure, other things being equal, and it certainly has been borne out by years of experience, and in thousands of cases. I fancy that every man in this room knows of cases that have gone to the southwest, and often without even proper care, or any particular change in their mode of living, have become cures or arrested cases. I myself went to the southwest with tubercular trouble and returned a supposed cure. I then went to Germany and entered the University of Heidelberg and after eight months there (though I had lived under the best conditions possible to do my work) I began to have signs of a return of the disease. I at once went to Davos Platz, Switzerland, and remained three and one-half months, working as hard and living the same as I had in Heidelberg, and yet I constantly improved. Nothing but climate can explain such cases.

I am reminded of a young man of this city that I at one time advised to go to a sanatorium in New Mexico. He went to New Mexico, but did not enter the sanatorium. First he lived for a month in a rather poor

hotel, loafing around the town; later he took a position working at carrying messages and keeping time for a gang of men working in the Rincon tunnel, where he was often compelled to crawl on his hands and knees in the darkness of the tunnel, and despite these unfavorable circumstances, he steadily improved. Thousands of the people making up the population of that section came there for tuberculous trouble; most of them have lived as they lived in the east, have in most cases worked at their usual occupation, and yet have become cures in many cases, in others only arrested cases, but they go on leading busy, useful lives. All this certainly can be ascribed only to the benefits of the change of climate.

Long ago Ex-Surgeon General W. A. Hammond wrote:

"New Mexico is by far the most favorable residence in the United States for those predisposed to, or afflicted with, phthisis. In a service of three years in New Mexico, during which period I served in eight different stations, ranging from the extreme northern to extreme southern parts of the territory, I saw but three cases of phthisis and those were in persons but recently arrived from the United States."

Few, if any, in our country have had the experience in tubercular work of the late Dr. Solly, of Colorado Springs. He wrote: "During twenty-two years of my practice in Colorado Springs my colleagues and myself have only been able to collect some twenty cases that have originated in this town, population 22,000, and this in spite of the fact that the hygienic conditions of some of the poor parts of the city are very indifferent."

I might add that this is all the more remarkable from the fact that Colorado Springs is one of the oldest and best known resorts for tuberculosis in the west, and a large percentage of the people living there are there as a result of one or more members of the family having the disease. In Albuquerque, N. M., a town that has been the resort for thousands of tubercular cases for years, I asked a local physician who had lived there some eight years his experience on that point. He said that he had not had a case occur in his own practice, but knew of one that had occurred in the practice of a friend in Old Town, a suburb.

While I was in old Mexico three years ago I took particular care to inquire into this among the physicians I met and the answer was always the same in the country noted for the dryness of the air and high altitude. There was practically no tuberculosis. It is all the more remarkable since I met physicians only in the larger cities, such as Mexico City, Aguas Calientes, Guanajuata, etc., the first city with a population of 400,000 people. Long ago Archbold Smith and Tschudi published observations as to the extreme rarity of phthisis in the Andes. During a year's residence there Smith saw only one case: a woman who came from Europe. Holden did not see one case in Bogota during a prolonged residence there. The plateaus of Armenia and table lands of Persia are almost devoid of tuberculosis. Writing of Upper Silesia,

Virchow said: "Although I have seen an exceptionally large number of sick persons of the poorer class, both in town and country, at their homes and in hospitals, yet there has not come to my notice a single case of phthisis."

We are, however, not confined to strictly empirical proofs. There are good and sufficient reasons why we might expect this. Take the one factor of altitude alone and we find such physiological changes produced in the healthy patient by an increase of altitude that we might expect good in the tubercular; changes that are constant and marked in every case. One of the most remarkable is the blood changes.

Regnard at sea level placed a rabbit under a bell glass and reduced the atmospheric pressure until it was equivalent to an altitude of 9,500 feet. The rabbit remained fat and healthy and when he came out examination of the blood showed that it absorbed 21 c.c. of oxygen as compared to 17 c.c. that the blood of its fellows could absorb at sea level.

Dr. Egges, experimenting in Arosa, Switzerland, altitude 5,500 feet, on 27 cases found an average increase of red blood corpuscles of 16 per cent. after a few weeks. The increase was greater in non-tubercular persons than in tuberculous. Experiments on rabbits showed an increase of 17 per cent., and he demonstrated by tapping the carotid and femoral arteries that it was not confined to the capillaries and superficial vessels alone. He also found an increase of 16.33 per cent. in the hemoglobin; the latter, however, increasing more slowing than the corpuscles. As this is exactly what happens after a hemorrhage, when there is a rapid increase of red corpuscles followed by a gradual increase of the hemoglobin, he believes it to be additional proof that altitude increases the actual amount of both corpuscles and hemoglobin and that it is no mere relative apparent increase. Muntz, experimenting on rabbits, found that the specific gravity of the blood, also the amount of iron, was increased by a high altitude. Fiault also got the same results. Regnard probably established the basic cause, when he proved that if the barometric pressure was decreased the blood's power of absorption of oxygen was increased.

These results I have seen myself time after time, and as a routine at Silver City we added a million to the usual normal count to establish our normal there, and at Davos Platz, Switzerland, we expected about the same increase for the normal count. In fact, many people are sent there for the very reason that they suffer from anemia, and since anemia so often complicates tuberculosis, is it not rational to suppose that this change is of decided value? Dr. E. S. Bullock, in a recent letter to me, says that the blood pressure in a large number of advanced cases in his sanatorium showed 25 per cent. higher than that of an equal number of incipient cases taken in Baltimore, and he adds that he always considers a low blood pressure in his patients as a bad sign. Then, with increased altitude, we get pure air so that at 5,000 feet or over it is almost sterile, as is demonstrated by the fact that ranchers after killing a beef have

only to hang it in the open air on a pole to insure its keeping fresh. It, of course, finally becomes dry, but never becomes stale or putrid.

Niquel, experimenting at Mount Sorne, found in one cubic c.c. of air 80 bacteria; in the Rue de Rivoli, 920; in Hotel Dieu, 7,500; in Hotel de la Pitie, 29,000 bacteria. Frankland and Pelsis have gotten similar results. You will also find after some months an increase of from one to two inches in the measurement of the chest, showing that all the air cells are expanded and in use. Can any one doubt that such marked physiological changes can be without effect upon a patient?

As is well known there is more ozone in the air of the mountain than in that of the lowlands, while at high levels the positive electricity is increased, which may explain the wonderful exhileration one feels in such places. The effects of a low humidity are not quite so marked, but that they are marked is proved by the low percentage of tuberculosis in all climates where this obtains, and we all recognize the depressing effect of our heavy humid atmosphere that we experience on many days in Chicago. I use "heavy" here only figuratively, for I recognize the fact that in reality damp air is lighter than dry air, but since water is an excellent conductor, while air is not, it feels heavy. This indeed is one of the benefits of dry air.

The Government Weather Bureaus now recognize and register two kinds of temperature, the actual, registered by the ordinary thermometer, and the sensible, measured by a thermometer with a bulb surrounded by a damp cloth, so as to make it approximate the condition of our body, which is constantly cooled by surface evaporation of perspiration. The records go to prove what the residents of the Rocky Mountains always claimed, that we are more comfortable there at a given temperature than in the humid air of the east at the same height. The value, of course, varies with the humidity, but the average will easily reach 15 degrees. In other words, one will be quite as comfortable in one of the towns of the southwest at 90 degrees as they would be in the east at 75 degrees. As a result, while the extreme of heat for Chicago and Albuquerque, N. M., are the same by actual heat measurement, by sensible heat measurement it is the same at Albuquerque as at Southern Canada. I was suprised one day in Phoenix to learn, after having worn a heavy coat and vest all day and had experienced no inconvenience, to find that the thermometer registered 93 degrees.

The third and last factor, "sunshine," is, I believe, quite as important as that of humidity. Weber and others have demonstrated that a want of sun light will develop symptoms of general depression and a condition analogous to intermittent fever, while we have all seen its good influence in anemia and other conditions. The time bactericidal effect of the sun has never been recognized, and the intense, almost constant sunlight of the southwest may explain to a great extent the rarity of living organisms in the air. Experiments carried on at the University of New Mexico in Albuquerque showed that as low as five minutes exposure to the sun of a smear of tubercle bacilli would destroy them.

A secondary effect of sunshine that is also quite important to my mind, is the effect on the minds and spirits of the patients. Almost anywhere in Arizona or New Mexico one can depend upon 320 or more clear days a year, and a day that is cloudy all day is very rare, but when one does occur it is not difficult to note the depression on the faces of the patients.

I have already shown that people going from the east with tuberculosis settle in the southwest and with no particular change in their methods of living get well. We could hardly ascribe this to anything but climate. Quite as remarkable is the fact that there is one very well known sanatorium in the east that sends its cases which fail to improve there, to a sanatorium in New Mexico. I know personally of seven of these cases, as I had them under my care for three months while acting superintendent, and all have done well and are home as cures or as arrested cases. As the technique in the two institutions is quite the same, we could hardly find anything to explain this but climate.

With these facts before us I can see no reason for treating a patient that can afford to go west and have proper accommodations and care. It is my belief that there are cases being allowed to die in the east that could get well in the west, and here would be a good place to read a part of a letter I had recently from Dr. Bullock, of the New Mexico Cottage Sanitarium, that is, at least, significant. He writes: "Suffice it to say that in the past four or five years since the home cure (?) has been popular, our percentage of far-advanced cases over incipient and those moderately advanced, has increased 50 per cent. In my institution at present I have 90 per cent. of far-advanced cases, and at this time seven years ago I had 45 per cent. of far-advanced cases. So you see that broadly we can say that our successes are made from their failures."

There is food for thought in this. Personally, I know of many cases that failed in home cure, that now, as advanced cases, are taking the cure in New Mexico and most of these are improving. In most of these cases there was no reason or excuse for keeping them at home, as their finances were adequate. Another portion of Dr. Bullock's letter is of interest and bears on a very important point. He writes: "In ten years constant life in a sanitarium here I have never seen an intercurrent infectious disease among my patients," and a little further on he makes the even more important assertion that: "Mixed infection never develops here." Do you consider that of advantage to a "lunger" struggling for his life against tuberculosis?

I will not tire you with more arguments on a point that seems so self-evident. I wish, however, to read to you the opinions of a few men whose experience makes their words of more weight than mine can be. To begin with, in our country that grand old man among physicians in this work, Dr. Trudeau, who was the pioneer of the "out of door" treatment in America, holds the same opinion as to the value of a good climate that he did 24 years ago. He never put it as pre-eminent. He

does not now, but he recognizes it as of great theraputic value. Dr. King, who has perhaps done more to popularize out of door sleeping than any other one man, has the same views. In our own city, Dr. Arnold C. Klebs, who has done so much to popularize open air treatment, in conversation with me, characterized as nonsense the idea that there was no value in a change of climate. We all know and respect Dr. Babcock, and after his years of experience, he says in his new work on tuberculosis:

"The discussion of phthisis-therapy would be far from complete were the consideration of a change of climate neglected.

"Of late, under the influence of the sanitarium idea, there has been growing up in certain quarters an inclination to scout the benefit or desirability of a change of climate in the treatment of pulmonary tuberculosis. It is argued in effect that since it is life in the open air, together with other hygienic and dietetic accessories which accomplishes a cure, either absolute or relative, there is nothing to be gained in one climate over the other. While agreeing fully with the premises of the proposition, I cannot coincide with the conclusion. As regards purity of the atmosphere: It is assuredly a great desideratum and furnishes a strong argument as compared to the home climate, and yet it must be acknowledged that the air in a sparsely settled locality is not so contaminated with germs, dust, or smoke as to render it injurious for the tuberculous. It must be the abundance of sunshine and great preponderance of cloudless days that makes most of the health resorts so desirable a place of residence for consumptives.

"Freedom from sudden change of weather is a special recommendation of certain climates since the invalid can reckon with certainty on pleasant weather from the beginning of a day to its close, and often from one week's end, or one month's end to the other. Consequently, in such an equable climate, the tuberculous invalid runs comparatively little danger of the congestion and catarrhs so dreaded in the open air management of the patients in a changeable, often damp and cloudy climate at home.

"There is one other phase of the question still to be considered, viz., altitude: Does a mountain climate offer special advantages to the tuberculous? It is my opinion that it does."

In England such men as Wabber, Hunter and others might be quoted, had I time. As we have seen, Germany has had forty-nine years in which to thresh out this subject, and I will end my quotations with the words of Professor G. Cormet, of Berlin, whose experience, both in the home and the sanitarium treatment, can be equalled by few men in the world. In the last American edition of Nothnagle's Encyclopedia of Medicine he says: "The conditions demanded by rational treatment of the disease are rarely satisfied in the home, even in the case of well-to-do people. Far back in antiquity consumptives were sent to reputed health resorts. Which cases should be sent away, where to, and for how long a time? For cases in which the therapeutic indications cannot be satisfied in the home and which have

sufficient means, a change to a health resort is very desirable. The extent of the disease enters into account in so far that patients who have had high fever for some time, who are much emaciated, and who have no hope of recovery should not be subjected to the disturbances of a long journey with its unavoidable excitement and injury. It is just such patients, who, on the approach of death, are seized with the desire to travel, although they had, perhaps, opposed that very demand when made by the physician in the earlier stages of the malady. It is difficult to dissuade them or to restrain them until "they shall be stronger."

Fever in itself is no contraindication, even if it is high, if it has lasted only a few days or weeks, or if it has lasted for some time, but has not reached a very high point. It is, indeed, well recognized that change of climate often of itself rapidly cures fever. We must not throw up the sponge too early, for often patients have been saved by a change of environment after having been given up. There is a general tendency to wait until the fever has abated. I, in common with many of the most experienced specialists, put faith in the favorable effect of a change, and take just the opposite standpoint. Nothnagel considers change of climate to be often the only cure for fever, and Brehmer and others similarly express themselves. The annoyances of a trip are to be recognized, but not overestimated; otherwise, it would be like postponing the use of antipyretics until the fever has abated.

On the whole, the patient is to be sent away as soon as possible. The sooner he goes the better are the prospects for an early and complete recovery. Every week of delay may add months of invalidism. Nothing is so harmful as the notion that the patient is not so sick as to need immediate change, and that it is well to wait. When once the diagnosis has been made, the disease is serious enough to make every delay serious. Even if there is only a strong suspicion of tuberculosis, it is well to be on the safe side. It is preferable to send a patient away too early or unnecessarily, rather than to have subsequent misgivings."

All of these gentlemen, of course, expect that the patient shall have proper food and good living quarters and that they be under competent professional supervision.

To sum up, I think we can say that granting that in most cases it is possible to treat tubercular patients at home, yet with patients who can afford it, we are doing our whole duty only when we send them where they can have, not only the benefits of expert phthisiotherapists, but where they can also have the benefits of a suitable climate; where they can not only take the open air cure, but where they will be glad to be out of doors day and night, and not be out as a matter of duty; where also they are free from the dangers of mixed infections and occurrence of intercurrent diseases.

Finally, I think tradesmen and others who can later secure positions there should be sent where they may work at their trades and still live comfortably and well.

THE PRESENT STATUS OF THE RELATION OF BOVINE TO HUMAN TUBERCULOSIS.*

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Koch in 1901 called the attention of the medical profession throughout the world to the question of the intercommunicability of bovine and human tuberculosis. Theobald Smith says that there are some undoubted cases of bovine tuberculosis in children, and among whom ingestion does play a more important part than in adults, but that there is at present no evidence that bovine bacilli may be transformed and assume the human type in the human body. Koch went further and denied the transmissibility from man to cow and vice versa. He was the first to state authoritatively that tuberculous cattle are not a source of infection to human beings.

Behring asserts that tuberculosis in man and cattle is propagated by identical bacilli, and that practically all tuberculous infections in man have a bovine origin, and that the seeming difference between the human and bovine bacilli result from the capacity of the bacilli to accommodate themselves to the organisms in which they live. He also holds that bovine tubercle bacillus is more virulent for man than the human tubercle bacillus. He also believes that the infant's diet of milk is the whole source of infection in tuberculosis.

De Schweinitz, United States Bureau of Animal Industry, has isolated nine cultures from human tuberculosis. By comparing these cultures with the newly isolated virulent cultures of bovine tuberculosis, there were found among them two cultures from children which were identical in their cultural and morphological characters with the bovine bacillus. Chaveau demonstrated that human tubercle bacilli were possessed of sufficient virulence to produce disease in animals and when injected subcutaneously they caused local tuberculous disturbances; hence he claims that they are practically identical.

The Royal Commission in England in concluding their report of their investigation, the commission says: We have very carefully compared the disease thus set up in the bovine animal by material of human origin with that set up in the bovine animal by material of bovine origin, and so far we have found they are both in its broad general features and in its finer histologic details, to be identical with the other. We have so far failed to discover any character by which we can distinguish one from the other. On the other hand, the German commission and nearly all the French and German bacteriologists believe the existence of two types of bacilli is proven. Theobald Smith, Ravenel and the great majority of American pathologists, most of whom have done experimental work, agree that there are two types of tubercle bacilli, distinct in cultural characteristics, virulence and morphology.

Koch's claim that human type will not infect cattle has been disproved by many observers; however, the infection of animals to human

* Read at the North Side Branch of the Chicago Medical Society March 6, 1908.

tuberculosis has rarely occurred in feeding experiments and has been successful in only a small number of instances after inoculation. Experimentation has shown that the human bacillus is not very virulent to cattle. On the other hand, it has demonstrated that the bovine bacillus is very virulent to cattle and swine. The question which is of greatest concern to us is whether bovine bacillus is transmissable to man, and if so, to what extent? It has appeared to me that we might obtain some indication from statistics as to the frequency of human infection from animal sources. While not losing sight of the fact that pulmonary tuberculosis may be caused by ingestion as well as by inhalation of the bacilli, we may nevertheless admit that by far the greater number of cases of pulmonary tuberculosis are the result of infection by inhalation. This being the case we should expect to find a difference in the rate of increase or decrease of tuberculosis of the lungs as compared with other forms of tuberculosis.

Thorne's table shows that in England and Wales, between the periods of 1851 and 1860 and 1891 and 1895, there was a reduction in the mortality of all ages from pulmonary tuberculosis of 45.4 per cent., while the reduction of mortality at all ages from tabes mesenterica was but 8.5 per cent., and the mortality from tabes mesenterica under one year of age actually increased 27.7 per cent. for the period referred to.

In Massachusetts for the years first mentioned for the period under five years of age the death rate from pulmonary tuberculosis was 46.3 to 1,000 deaths from all causes. For the two years last mentioned it was but 15.6 to 1,000 from all causes. In the two years first mentioned there were in the same age class 70.7 deaths from other forms of tuberculosis to each 1,000 deaths from all causes, and in the two years last mentioned there were 96.2 from other forms of tuberculosis to each 1,000 deaths from all causes; thus in 40 years there was an increase of 36 per cent. in the forms of tuberculosis other than phthisis in the class under five years of age. While there was a reduction of the mortality from phthisis from all ages of about 45 per cent.

In Michigan for the years from 1870 to 1884, inclusive, in the class under five years of age there were for each 100 deaths from consumption 81.8 deaths from other forms of tuberculosis. From 1885 to 1897, inclusive, there were 104.3 deaths from other forms of tuberculosis to each 100 from consumption. While during the three years from 1898 to 1900, inclusive, there were 263.3 deaths from other forms of tuberculosis for each 100 in consumption. Why this tremendous increase in the mortality from other forms of tuberculosis as compared with consumption at what has been called the milk drinking age of life?

Gottstein states that among children in Berlin the mortality of those at the breast is but slightly more than half as much from tuberculosis as among those otherwise nourished. The figures we have just studied seemed to be contradicted by other experiments equally convincing, indeed the weight of opinion is on the other side, led by no less an authority than Robert Koch.

Bovaird, Jr., discusses the experimental work done by American and European investigators and after considering the evidence pro and contra sums up by saying that it appears that human tuberculosis can be transmitted to cattle, but with difficulty, and it seems highly improbable that such transmission plays any great part in the production of the disease among cattle. Bovine tuberculosis can be transmitted to man, but the evidence that such transmission occurs under ordinary circumstances, is extremely scanty and it is highly improbable that such transmission plays any important part in the spread of the disease in man. An important feature in the research work done has been that relative to the infection of children through the intestines, and of this the author says: it seems that we can still safely say that the greatest weight of evidence is against frequent infection of children through the intestines, and that we cannot, therefore, consider that tuberculous milk is frequently the means in conveying the disease.

Ganghofner, after studying the autopsies of 253 children who died of tuberculosis, states that the bacilli of bovine tuberculosis rarely give rise to human tuberculosis by transmission in the food. He compared the statistics of human tuberculosis in certain sections with the official data of bovine tuberculosis and tuberculosis of the udder. He found nowhere any parallel between the two diseases. Often human tuberculosis was rife where bovine tuberculosis was scarce and vice versa. Spengler states that in all the cases he has examined of localized tuberculosis of adults and children in whom the disease was not suspected, it was clear to him that the origin was in the bronchial glands and that the mesenteric and intestinal glands were not affected. In children who died of tuberculous meningitis, tuberculosis of the bronchial glands was never absent. Raw, as a result of an observation of 3,500 cases of tuberculosis with, in addition, a study of 650 autopsies in such cases, expresses the opinion that human and bovine tuberculosis are separate and distinct varieties of disease and that the human body is susceptible to both.

The Imperial Board of Health of Germany has given out for publication the report of the committee which has been studying, under governmental auspices, the relation between human and bovine tuberculosis. The committee distinguished two types of tuberculosis. From one to two years of experiment and test failed to show any indication of transformation of any one of these types into another type. The attempts to inoculate cattle with human tuberculosis all resulted negatively.

If, as Behring says, the bovine tubercle bacillus is more virulent for man than the human tubercle bacillus, a more virulent disease must result from bovine than from human infection, and, moreover, if practically all infections occur in nurslings from infected milk, then the greatest prevalence of tuberculosis should be in the years of infancy and early childhood. Tuberculosis, however, is rare in infancy, as the observations of Westenhoffer, Froebelius, Baginsky, Biedert, Lannelongue, Huebner, and all pediatrists show. Moreover, the mortality increases from birth until about the fifth year, and then declines to the age of

puberty, after which it again steadily increases. Epstein in four years did not find a single case of tuberculosis in the autopsy material of the foundling asylum at Prag, where the children were received directly from obstetric clinics without having been associated with tuberculous mothers. Again, if Behring's proposition be correct that the bovine tubercle bacillus is the chief and practically the only source of infection, the mortality from tuberculosis of children nourished with cow's milk should at least far exceed that of breast-fed infants; but this is not the case. In Berlin records have been kept of the method of feeding all children under one year who have died of tuberculosis, and the figures are cited by Fraenkel, as follows:

In 1899 the total infantile death rate from all causes was 10,933; in 1900, 11,762; in 1901, 11,325; in 1902, 8,927. Of these there received mothers' milk exclusively, 898, 895, 832 and 733 respectively, of whom there died of tuberculosis in 1899, 11, 1.1 per cent.; in 1900, 8, 0.9 per cent.; in 1901, 4, 0.5 per cent.; and in 1902, 5, 0.7 per cent. Of children reared exclusively on cow's milk there died in 1889, 6,631; 1900, 7,305; 1901, 6,982; 1902, 5,246; and of these death was due to tuberculosis, respectively, in 79, 1.2 per cent.; 70, 0.9 per cent.; 63, 0.9 per cent.; and 61, 1.1 per cent. From these figures it will be seen that the maximum difference in any one year between the two series is represented by only 0.4 per cent., a fact which does not bear out Behring in his views.

Speck, in order to determine the degree of danger of tuberculous infection in infancy from milk, made inquiry of the various sanatoria for tuberculous patients in Germany concerning the method of feeding of patients up to the third month of life. It was shown that of 4,467 phthisical patients of the sanatoria, 3,455 had been breast fed, or 77 per cent., and 1,012 had received cow's milk, or 23 per cent. Of 259 cases reported by other physicians 181, or 70 per cent., were breast fed. Jacob and Pannwitz reported 2,921 tuberculous patients; 1,877, or 67 per cent., were raised on cow's milk. Schroeder reports 264 cases; 203 were breast fed, or 77 per cent., and 61, or 23 per cent., were fed with cows' milk. Servæ reports 99 cases, of which 63 received women's milk, or 64 per cent., and 36 received cows' milk, or 36 per cent. These figures Speck has summed up, making a total of 8,010 cases of tuberculosis, of which 5,854, or 73 per cent., were breast fed children, and 2,156, or 27 per cent., were raised on cows' milk.

While these statistics represent conditions on the continent, the records of the Winyah Sanitarium at Asheville, N. C., show that 75 per cent. of tuberculous patients have positively stated that they had been breast fed, 15 per cent. could not make positive statements and 10 per cent. were raised on cow's milk.

Another discrepancy between Behring's theories and facts Biedert has remarked in the following: In the lower Pfalz district there are 182 head of cattle per 1,000 inhabitants, and according to meat inspection there are 7.5 per cent. of tuberculous cows. Here the mortality from tuberculosis is 35.9 per 10,000 inhabitants. In the upper Pfalz there are 314

head of cattle per 1,000 inhabitants and of tuberculous cows, 17.3 per cent. Here the mortality from tuberculosis is 29.1 per 10,000. Again, Tonzig cites the statistics of the city abattoir of Padua, which shows that bovine tuberculosis occurs with rarity. Yet, this city furnishes the greatest mortality of all Italian cities from tuberculosis with a remarkable frequency of intestinal tuberculosis. Carter says that the average mortality from tuberculosis in the city of Havana represents more than 21 per cent. of the total death rate, and yet raw cows' milk is never used in Havana.

In Sweden, where for generations nearly all mothers have nursed their children, we find a higher death rate among children from tuberculosis than in certain other countries where artificial feeding is frequently resorted to. Hirsch cites the comparative statistics for four countries as follows: Switzerland, 1.86; Prussia, 2.94; Norway, 2.21; Sweden, 3.5. According to Babes, tuberculosis is very prevalent in Roumania, where the children receive no cows' milk, and according to Arthur Meyer, in England, where milk is used raw much more than in Germany, the tuberculosis mortality is less than on the continent, although Ransome, Delepine, Boyce, and others have shown that milk contained tubercle bacilli in large numbers of the samples which they examined. On the other hand, in Sardinia and in Sicily where bovine tuberculosis, according to Dr. Vestea, is almost unknown, the tuberculosis of man causes a greater mortality than in England.

Dr. William S. Stowell states that at the New York Infants' Hospital, which has 2,500 patients, and which is supplied with milk from twenty-eight cows kept on the farm, that between the years 1903 and 1907, there were 4,537 patients, of whom 180 died; 18 of these died from tuberculosis, a mortality of 10 per cent., which is the same mortality as for the nation, and yet these children have been fed on tuberculous milk, for in 1903 two diseased animals were found and killed. In October, 1907, it was found that out of thirty cattle only three failed to respond from the tuberculin test. Comby, before the International Congress of Tuberculosis in 1905, made the emphatic statement that, from his observation, milk played no appreciable part in the spread of tuberculosis in children.

Sterilized milk is almost universally used for infant feeding in Paris, and while it has resulted in marked diminution in the death rate from intestinal diseases, yet the mortality from tuberculosis in children has increased. Holt found no cases of primary intestinal tuberculosis in 119 children dying from tuberculosis. Bovaird found two cases in 125 autopsies; Northrup, 3 in 125; Hand, 10 in 115 autopsies on tuberculous children.

Statistics from all sources show that tuberculosis is relatively rare in the first six months of life and that the greatest number of cases occur between the second and sixth year. If tuberculous milk is such a great source of danger, a greater number of cases would appear before the second year. Heymann tells us that in Greenland infants are almost exclusively breast-fed, and yet tuberculosis is so prevalent that it is easier

to name those who are free from it than to attempt to report the widespread presence of this disease. According to Cobb, tuberculosis in all its forms is the greatest scourge in China. Nevertheless, the use of milk as a food by the Chinese is so rare that one may practically say they do not use it. Very few cattle are raised by the Chinese and these are mostly used for ploughing.

Finally, we are informed by Shiga that bovine tuberculosis was unknown in Japan until thirty years ago, when foreign cattle were imported, and from Professor Asyama of Tokio, we learn that tuberculosis has been widely disseminated in Japan for centuries, in spite of the fact that few decades ago the feeding of nurslings has been only by the mothers' milk or that of wet nurses, for ritual and religious reasons. The people of Hindustan, like the other oriental races, do not use milk to any great extent, yet tuberculosis prevails there as elsewhere. In the Philippines milk is seldom used, and in Cuba and all the Spanish-American countries the milk is invariably boiled before using, yet we know they have tuberculosis. The Alaskan Indian has tuberculosis to a great and increasing extent, yet he does not use milk of any kind as an article of diet and cows' milk not at all. In the Islands of Jersey and Guernsey the cattle are free from tuberculosis, but the people of these islands do have tuberculosis just about as much as we should expect to find elsewhere under similar environments.

As to the frequency of which bovine bacilli occur in milk Delepine found virulent tubercle bacilli in 17.6 per cent. of a series of specimens collected in Manchester. Adami found bacilli in 60 per cent. of tuberculous cattle in which there was no lesion of the lacteal tract. Ravenel experimented with five cows with no physical signs of tuberculosis, but reacting to tuberculin, and later confirmed the diagnosis on autopsy. The milk of these cows was inoculated into guinea-pigs, of which number 18.7 per cent. became infected by a single dose of milk from cows having no disease of the udder. Rabinovitsch of Berlin obtained similar results.

It is difficult to state the exact frequency of tuberculosis in cattle, but as a general proposition it can be put down as being about 15 per cent. of the total number, therefore it can be readily seen that if all milk containing tubercle bacilli was capable of producing tuberculosis very few of us would escape.

We must conclude from the available evidence before us at present that experimental work strongly favors the view that the infection in pulmonary tuberculosis takes place, in the vast majority of instances, through the respiratory and not the alimentary tract. For the present we must continue to assume that inhalation tuberculosis is the common form of pulmonary tuberculosis, and we must continue to take precautions against its spread which experience has suggested and which practice has shown to be distinctly of value. This view does not, of course, imply that intestinal infection with the tubercle bacillus may not lead to pulmonary tuberculosis. There is good evidence that it occasionally

does, but there is a wide difference between the view that pulmonary tuberculosis is an occasional sequence of intestinal infection, and the belief that it is commonly of intestinal origin. The latter view and the light of present knowledge is untenable.

I repeat to-day what I said in my article (Jan. 24, 1900), and published in the March number of *Medicine*, namely, that while infection from milk and meat may be possible I believe it to be extremely infrequent, and that the chief means of communicating the disease, even in childhood, is by inspired air and that the greatest danger of contracting tuberculosis is not from meat and milk, but that the greatest source of contamination is from ourselves.

34 Washington Street.

TUBERCULOSIS OF THE KIDNEY.

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Our knowledge of renal diseases, particularly of the surgical type, has advanced to such a degree the last few years that the urologist stands upon much firmer ground in regard to etiology, diagnosis, treatment, and prognosis of these conditions. General tuberculosis is being studied the world over for the purpose of reducing mortality, naturally the urologist is interested to a great extent in renal tuberculosis. The cause of renal tuberculosis in every case is traceable to the invasion of renal tissue by the tubercle bacillus. Renal tuberculosis is practically always hematogenous in its origin, and is always unilateral at the start. Ninety-five per cent. of all cases of renal tuberculosis collected show the condition to be hematogenous, while the 5 per cent. is due to the extension of the lesion from the adjacent parts, as in the male from the testes, seminal vesicles, etc.

The condition in the kidney is always, as a rule, secondary to tuberculosis elsewhere in the body. Many times it will be difficult to exactly locate this lesion, for there may be no signs or symptoms. Renal tuberculosis may attack the organ primarily; it, however, is rare, for, according to Albarran, there are only five cases of primary tuberculosis of the kidney on record, where the autopsy showed no other tubercular lesion. Morris, on the other hand, says that primary tuberculosis of the kidney was found in ten cases out of 74 at the Middlesex Hospital. In nine out of this 74 only one kidney was involved. There is no doubt that tuberculosis of the kidney may be primary, but it is so seldom found that it need not be taken into consideration.

It is a fact beyond doubt that the lesion does occur unilaterally in a large proportion of cases, particularly is this noted in the early stages. Later in the disease, after all the well-known symptoms and signs are

in evidence, 50 per cent. of the cases are bilateral. Men are more apt to be affected than women, and it is not infrequently met with in young persons. The right kidney in adults, from statistics which I have gathered, seems to have been involved more often than the left. Two different types of tuberculosis of the renal tissue are miliary and caseating. The former is characterized by the presence of miliary tubercles scattered through the tissue of the kidney so that it may be seen on inspection of the organ, before it is opened, near the surface immediately beneath the capsule. Upon section of the organ they are frequently seen in the cortex in the shape of small whitish or yellowish spots.

The caseating form is characterized by the presence of grayish or yellowish cheesy nodules scattered throughout the substance of the kidney, which is usually enlarged and nodulated. During the course of the disease these cheesy masses become increased in size and open into the renal pelvis or under the fibrous capsule, which they may break through, forming a perinephritic abscess.

The cardinal symptoms of tuberculosis of the kidney are hemorrhage, pain, and frequency of urination. One of the first symptoms to show itself is that of frequency of urination, which occurs both diurnally and nocturnally. This frequently is due to the constant irritation of the kidney. In the later stages of the disease it may be so frequent at night that it interferes with sleep, making it very fatiguing to the patient. Pain is not, as a rule, a very prominent symptom, for it may be absent or it may be present to an acute degree. It may be recurrent in its attacks, resembling somewhat renal colic. This pain may be due to an occlusion of the ureter due to tubercular débris or blood clots. The patient may complain of a weakness or heaviness in the loin which is constantly present. There may be tenderness upon palpation, but this is not constantly present. Many times, as in other renal conditions, the symptoms may be referred to the bladder, or they may be referred to the opposite kidney, so it is necessary that a careful examination be resorted to to elicit the exact location of the pathological lesion. The examination of the patient shows him to be cachectic, and if the symptoms point more or less to the urinary tract then an examination of the urine is absolutely essential.

The amount of urine is usually increased in the early stages, and this polyuria may be constant or intermittent in character. In the later stages of the disease the amount of urine is very much decreased, owing sometimes to renal retention by a plugging of the ureters. The reaction of the urine is acid until late in the disease, when it becomes alkaline in reaction. Usually there is a diminution in the amount of chlorids, phosphites and urea. A moderate quantity of albumin may be found, and, as a rule, this does not become very abundant. The microscopic examination of the urine is the important feature of the examination, for a diagnosis depends almost entirely upon the urine findings. One must not be too hasty in the microscopic analysis. The hematuria shows itself by the presence of red blood globules either in large or small numbers,

and it is evident almost from the beginning of the infection. The bleeding may be so profuse that it will discolor the urine. Pus corpuscles are also evident in samples of tuberculous urine. There may be casts, both hyaline and granular, some epithelial, and pus with epithelia from the pelvis of the kidney and tubules. The tubercle bacilli must be found and demonstrated before an absolutely positive diagnosis can be reached. It must be borne in mind that the technique of the examination for tubercle bacilli must be carefully followed. One feature which I wish to emphasize in this regard is that the urine must be examined in a fresh state. If the tubercle bacilli is not found this time and tuberculosis of the kidney is suspected, a cystoscopic examination of the bladder, together with catheterization of the ureters with a collection of a specimen of urine from each of the kidneys is necessary, and an immediate microscopic examination of the two separate specimens must be made, and an examination for the purpose of detecting tubercle bacilli. By this method the possibility of mistaking the smegna bacillus for the tubercle bacillus may be discarded. In the ordinary bladder urine this mistake may be made, due to the fact that the smegna bacillus reacts to the same staining process as that for tubercle bacillus. It is rare that the tubercle bacilli will be overlooked if the examination be carried on in the manner cited. If proper attention be paid to the technique of cystoscopy and ureteral catheterization there need be no fear of carrying infection from the bladder to the kidneys. There are numerous conditions which may be mistaken for tuberculosis of the kidney, the most important of these being nephrolithiasis. In calculus there is a personal history of gout, rheumatism, lithemia, while in tuberculosis there may be a tuberculous history in the patient or his family; renal tuberculosis comes more rapidly, the patient is more cachectic, there is more constant hematuria and frequency of urination. The frequency may be noted at night as well as in the day. There is usually involvement of the uro-genital tract elsewhere in tuberculosis, or of the glands, joints, or lungs, and tubercle bacilli may be found in the urine. Tuberculous kidney may also be mistaken for tumor, or vice versa. In each of these conditions there is a marked cachexia. The age of the patient, however, is different, as tuberculosis usually occurs in young adults, in patients under fifty, while tumors of the renal tissue are more commonly found in patients of fifty or older. In tumor of the kidney hematuria is more marked and there is an absence of tubercle bacilli. The organ may be palpated more readily in tumor, for it is generally larger and more constantly large than in tuberculosis.

One of the most difficult conditions to differentiate from tuberculosis of the kidney is that of pyelonephritis due to an ascending infection. Here we have both the kidney and bladder involved, as is frequently the case in tuberculosis. Pain may be of the same character, the patient will probably run a mild temperature, and have night sweats from the septic condition. The kidney may be enlarged and tender on pressure, there may be loss of weight, loss of appetite, and emaciation, and the

urine contain pus, blood, casts, epithelia from the pelvis and kidney. The only method left for differentiation between renal tuberculosis and pyelonephritis is the cystoscope and microscope, particularly the latter, for the diagnosis depends upon finding the tubercle bacillus. A cystic kidney may be taken for tuberculosis, but it should be remembered that a cystic kidney is more liable to be enlarged, is easily outlined, and is more irregular than a tuberculous kidney, and a cystic kidney patient does not run the same constitutional symptoms that a tuberculous patient does.

Urinary analysis will clean up any doubt as to this point. The duration of an ordinary case of renal tuberculosis is about three years after the development and first well-marked symptoms, the patient dying of cachexia or uremia. In tubercular lesions of the kidney the cystoscopic picture of the bladder mucosa combined with the appearance of the ureteric orifices will give us important data, and will give us corroborative evidence as to the condition of the kidney.

Primary tuberculosis of the bladder is an unknown condition, the infection occurring secondarily either from the prostate, seminal vesicles, epididymis, or from the kidney due to a descending infection. So if there are evidences of tubercular lesion in the bladder, the source of the infection must be located elsewhere, the infection being in the prostate, seminal vesicles, or epididymis can easily be discarded if the symptoms and signs which point to this location are wanting.

A careful study of the cystoscopic appearance of the ureteric orifice will be necessary, and the following points of interest may be ascertained by this study.

(1) If the orifice on one side is abnormal in appearance, while that on the other is normal, then with a reasonable degree of certainty the renal lesion is on the side which shows the abnormal orifice. Many times the character of this deformity will be indicative of cause and extent of the pathological lesion in the kidney.

(2) Edema with an active congestion of the mucosa immediately surrounding the orifice, with pouting and swelling of the borders of the orifice, speaks for pelvic irritation of an acute type which may involve the parenchyma as well.

(3) Acute inflammation of the pelvis may produce congestion of the lips of the orifice which will be dilated. The extent of this dilatation and congestion is in proportion to the severity of the inflammatory process. The surrounding bladder mucosa will be practically normal in appearance.

(4) The lips of a dilated orifice being thickened and gaping slightly, the opening being dark red in color, the surrounding mucosa congested with redness along the line of the ureter as it passes through the bladder wall, denotes an inflammation of the ureter of a descending variety with dilatation.

(5) A recent distension of the pelvis of the kidney is shown by an elongated and dilated orifice with redness of the lips.

(6) A dilated orifice without thickening of the lips and without congestion denotes a mild mechanical irritation either of the pelvis or kidney.

(7) An orifice appearing like a hole, punched out in character, with induration and congestion of the contiguous mucosa, speaks for an ascending inflammation of the ureter with marked dilatation.

(8) A pin point orifice which opens in a mass of edematous tissue highly congested denotes a marked inflammatory condition of the ureter, complicated with a pelvic and bladder condition.

(9) A pin point opening with no changes in the surrounding mucosa, is usually due to spasmodic contraction caused by the passage of a calculus or blood clot.

(10) A slight inflammation of the opening with slight congestion of the surrounding mucosa with thickening of the lips, denotes a pyelitis which may be accompanied by a mild nephritis.

In tuberculosis of renal origin in which there has been a descension of infection along the ureter, changes which may be particularly noticed in the ureteric orifices are as follows:

(1) A "holing" of the orifice with the surrounding membranes showing evidences of marked inflammation, with the presence of tubercles together with the presence of tubercle bacilli in the urine, denotes, with a reasonable degree of certainty, a deposit of tubercle in the corresponding kidney.

(2) A ureter displaced, pulled away from its normal position by traction of the ureter, gives evidence of tuberculosis of the corresponding kidney.

Note.—In tuberculosis of the kidney the organ retracts under the ribs and thus drags on the ureter, the orifice therefore being pulled out of place.

(3) A marked edema of the ureteric lips and immediately surrounding mucosa, marked congestion with the presence of tubercles, may denote tuberculosis of the corresponding kidney.

Note.—The condition of edema of the ureteric lips and surrounding tissue is more characteristic, however, of the presence of calculus which may be lodged near or at the orifice.

There, however, may be no change whatever in the appearance of the ureteric orifice in grave cases of tuberculosis of the kidney and the diagnosis must be left to the miscroscopical findings.

There are some cases reported in literature of spontaneous recovery, but I do not believe that they are authentic. There are cases which may seem to be healed in spontaneously, but later it will break out in exaggerated form. There have been all kinds of methods of medical treatment recommended for tuberculosis of the kidney and I believe that it is the concensus of opinion that medical treatment will do little good. In a large percentage of cases, as has been shown, the condition is unilateral in the beginning and if recognized early enough, the diseased kidney may be removed or treated, thus giving the patient a longer lease of

life than he would gain under any outlined medical course of treatment. It must be ascertained, however, before a nephrotomy or nephrectomy is contemplated, the functional activity of the sound kidney. This may be ascertained by catherization of the ureters, a collection of specimens from each kidney so that the amount of urine may be approximately tested coming from each kidney, together with the per cent. of urea, the amount of pus, blood, and inflammatory products contained in each specimen. At the same time the phloridzine and methylene blue test may be resorted to. Cryoscopy of the urine and blood of the patient may be performed.

From the results of the microscopic examination, the percentage of urea, from cryoscopy and from the phloridzine test, we are able to estimate the functional activity of the kidney. If the functional activity of the apparently sound or healthy kidney is found to be deficient a nephrectomy of the diseased kidney is absolutely contra-indicated. If the functional activity is decreased and in the judgment of the surgeon a nephrectomy is contra-indicated, then nephrotomy may be resorted to. The abscess cavity should be thoroughly opened and explored and the affected areas be curetted. The kidney should then be drained with rubber tube, gauze, or wicks. Nephrectomy is, no doubt, a more dangerous operation than nephrotomy, yet if the other kidney is capable of carrying on the work of the two, it is a better procedure to follow. In removing the kidney I do not think it is necessary to remove the ureter any more than I do the removal of the bladder when that viscus is affected with tubercular lesions. Early statistics regarding the mortality in nephrectomy in these cases is put as high as 40 per cent. to 45 per cent., but with the advent of the cystoscope and the methods of ascertaining the functional activity of the sound kidney, the operative mortality has been markedly decreased, and from statistics gathered recently it has been placed as low as 10 per cent. to 14 per cent. There are no statistics upon the mortality in these patients one year after the operation.

The postoperative treatment of nephrectomy is very important, as upon this many times depends the ultimate results of the operation. The patient should be placed in bed upon his back with the pillows so arranged that no pressure can be brought against the wound. This will allow free drainage and will prevent pain as far as possible. In septic cases the drainage should be carried out thoroughly, and the dressings changed frequently. An immediate after-treatment is the same as that in every major operation for the purpose of overcoming shock. This danger being over, that of suppression of the urine must be guarded against. The patient must be given large amounts of bland fluids, at first hot water and milk and alkaline mineral waters. Saline injections and transfusions, hot water packs, diaphoretics and purgatives if necessary. If there is suppression of the urine it may be necessary to catheterize the ureter on that side, and irrigate the pelvis of that kidney with hot boric acid solution to thus stimulate it to action. I have followed this procedure in one case with excellent results followed by unin-

terrupted recovery. The duration of the after-treatment is about three weeks. The prospects of quite a few years of health following a nephrectomy for tuberculosis is excellent if the condition has been unilateral. In nephrectomies life is extended from one to five years. If it is found that both kidneys are involved, and a nephrectomy upon the kidney which is more markedly diseased is contra-indicated, and there is a marked suppuration, then the medicinal treatment may be resorted to, consisting in out-door life, good nutritious food, pleasant surroundings, freedom from mental anxiety, together with the ordinary drugs which are given in tuberculosis of other organs.

Where there is marked suppuration, lavage of the kidney pelvis through the urethral catheter will no doubt be of some benefit and may lengthen the life of the patient. It has been shown that it is important to first accurately study the history of the patient, the cystoscopic and microscopic findings, and before giving a favorable or unfavorable prognosis, to exactly ascertain the functional activity of the supposedly healthy organ.

72 Madison Street.

THE PRACTICAL APPLICATION OF FOOD VALUES IN EVERY-DAY PRACTICE IN THE NUTRITION OF CHILDREN FROM THE AGE OF NINE MONTHS TO PUBERTY.*

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During the quarter of a century that pediatrics has existed as a special branch of medicine, instead of an adjunct of obstetrics or general medicine, so much has been accomplished of practical value that, according to Holt's statistics, there has been a saving of twelve thousand lives of children under 5 years of age annually in New York City alone. This remarkable saving of life has been accomplished through a number of different lines of work; through a more accurate knowledge of the development of the digestive apparatus, what the needs of the growing child are, at what ages the various glands are ready to digest the various foodstuffs, and what food will best aid in the development of the child, and through a general better sanitary condition of living. A more complete knowledge of what the essentials are of a desirable food have led to this brilliant result perhaps more than any other one thing.

Bacteriology has taught the undesirability of unclean foods, milk especially, and one of the important achievements of the past ten years has been to provide a possible clean milk supply to the children of our large municipalities. It is still the endeavor to make the complete milk supply of cities clean. In the country and country towns, generally speaking, the requirements of an up-to-date dairy are unheard of, with the result that the country child gets wholesome or unwholesome milk ac-

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cording to the degree of neatness of the individual dairyman, who is subject to no inspection of his work or his herd. As milk is, for a time, the only food of infancy and is the basis of the baby's diet up to 2½ years of age, a great deal of work has been done on this one food. It is now possible to get certified milk in the large cities of our country and in many of the small cities; yet the cities where the complete milk supply to the community is good are astonishingly few when one thinks of the aid to preventive medicine clean milk is. The profession has done yoeman service in this line; the improvement of the quality of the milk supply to New York and Boston and most of their suburbs, and recently Chicago can be added to the list, is an earnest of what can be done and will be done in the future, while Rochester, N. Y., and Louisville, Ky., stand out as striking examples of the good work done in the smaller cities.

The study of the matter and energy of food in the body or metabolism was partially understood at least as early as the time of Sanctorius (in 1614), who taught that the body was a machine to which the principles of mechanical motion could be applied. Others worked on this theory, though nothing of lasting value was done until the nineteenth century. Liebig, in 1840, arrived at conclusions apparently intuitively that later work has proven correct. And in 1865-6 Fettenkofer and Voit published the results of their experiments with Pettenkofer's newly invented respiration apparatus that are still regarded as classic. Since then there has been a mass of work done by scientists all over the world, especially by the Germans and Russians, on metabolism in man and animals that is of immense value to the clinician. In this country Flint began this line of investigation in 1873. Atwater and his school, under the U. S. Department of Agriculture, and with the aid of some of the state experiment stations, especially Maine, Connecticut, Minnesota, Illinois, Tennessee and California, has given the medical profession data that are simply invaluable as an aid to correct feeding.

The author wishes to make no claim to originality, but merely desires to put before you the clinical aid that she has had from a study of these metabolism experiments in prescribing dietaries for children in routine practice. The government reports available to all have been the basis of this study. The principles of good feeding demand that the needs of the body be met. The food must supply the elements that make up the body, that make it grow, that make it warm, that make it work. That these needs vary with the age is plain; the caloric value of the food requirement for a baby who of necessity makes few voluntary motions is much less than for the adult, yet it must have sufficient food value to grow, for every human being must gain in weight up to at least 16 to 19 years of age.

The demands of the body are for a certain quality and quantity of food elements and that these elements should bear a definite ratio to each other as they furnish to the body different powers or the same power in varying degrees. The five elements of nutrients required during infancy and childhood are the same as in adult life, proteid, fats, carbohydrates, mineral salts and water, but in the infant and child the form and relative

quantities are different in order to meet the weaker digestive ability and to provide growth. The food must give the body material for the repair of waste to store up strength to supply energy and for growth.

If the body is not given the proper food elements in proper proportion and quantity to its weight, it is obliged to use its own tissue to carry on its economy, that is, it can use its own protein and fat as fuel. We see examples of this in the wasting fevers. The available energy of the food ingested is that made use of by the body minus the solid part of the excreta. This energy may be heat, or kinetic energy, muscular or nervous activity. The right exercise of development of the nervous organization, the sensibilities, the higher intellectual and spiritual faculties of the body as well as the physical well-being depend on right nutrition.

Protein is the foundation of all tissues of the body and has tissue building and repairing properties. It can also yield energy, though it is not economy to so use it. The fats yield energy both as heat and muscular work and are stored up in the body as a reserve for emergencies. The fuel value of fat is two and one-fourth times that of protein and carbohydrates. It is the most economical fuel for the body. On the other hand, fats are not as good protectors of the body material as the carbohydrates. Another source of energy and heat production is the carbohydrates, and they offer the body its best protection from self-combustion, and in sufficient quantities they add to the fat stored up in the body. The fuel value of protein and carbohydrates are about equal, but carbohydrates give more energy for muscular work. The mineral salts act with the proteids as tissue builders, and the fats and salts help to make bony material; more salts are required during childhood than in adult life, because of the needs of the skeleton. Salts aid in all growth and are constituents of the blood and digestive fluids and by their presence facilitate absorption, secretion and excretion.

Water forms 66 to 70 per cent. of the human body in infancy and childhood and is an essential nutrient. The infant requires five times as much water in proportion to its weight as does the adult; its function is to render the food elements soluble so as to make them more digestible and it promotes elimination.

The results of foreign and home investigators have been slightly different as to the quantities of the food elements required by the body. Atwater in this country, Voit in Germany and Playfair in England are experimenters whose work is largely quoted. The general opinion is that Americans eat too much food of all kinds and especially of fat, starch and sugar. Atwater gives the requirement of protein as .28 of a pound daily for an adult at moderate muscular labor, while Voit gives it as .26. The quantity of food required varies directly with the work done and somewhat with the individual. Women and children eat less than men doing the same amount of work.

Langworthy made qut a series of figures to show the relative quantities of food required by adults and children. These figures are made in part from actual experiments and in part are arbitrary assumptions; at least they offer a fair idea of the amount of food required at different

ages in comparison with the adult standard. A child under 2 years requires 0.3 as much as an adult at moderate, active, muscular work.

A child from 2 to 5 years requires 0.4 as much as an adult.
A child from 6 to 9 years requires 0.5 as much as an adult.
A child from 10 to 12 years requires 0.6 as much as an adult.
A child from 12 to 14 years requires 0.7 as much as an adult.
A child from 15 to 16 years requires 0.8 as much as an adult.

The usual division of the life of the child into infancy—including the time from birth to the end of the first dentition or 2½ years—and childhood—from 2½ years to puberty—has been shortened in this paper by beginning, instead of at birth, at 9 months of age, that is, at the time when other foods than milk are demanded by the growing organism. This is a period in the life of the growing child when little attention has been paid to the diet, yet it is a period when, if the demands of the organism are not met, disaster in the form of disease or lack of proper development is sure to follow.

In studying the ability of the infant to digest between the ages of 9 months and 2½ years, we must be guided largely by the development of the digestive apparatus, that is, the body requirements at that age. All the food elements demanded by adults can be digested by a new-born infant if given in the one food, milk, that contains them in the proper quantity, proportion and form. The salivary glands do not secrete ptyalin until the last of the first year of life, and its amylolytic function is not well developed until later—and even after this ferment is secreted it is largely wasted in druling until the child begins to chew at about 2 years—that is, the slight diastatic action of the saliva may be practically disregarded until the end of the first dentition at 2½ years.

The stomach at 9 months has a capacity of from six and a half to eight ounces and is provided with similar but weaker digestive ability than the adult organ. The liver through infancy and childhood is larger in proportion to the size of the body than in adults. The pancreatic juice has only slight amylolytic power and slight ability to digest fats until the end of the first year. The intestines are longer proportionally in childhood than in adult life; in adult life the ratio of length is 1:5, in childhood 1:6 or 1:8, and the lymphatic system is highly developed and more active than in later life. The greater proportional size and activity of much of the digestive apparatus of infancy is to meet the need of greater metabolism required by growth. The difference, if any, of the action of the tissue ferments in adult and childhood digestion is not clear; that these ferments may either build up or break down according to the conditions in which they act is quite sure, and that ultimate digestion is to break up food proteids into other simpler forms of protein and to reconstruct them into forms usable by the highly diversified tissues of the body and that this process is carried on in the tissues and not by the digestive tract is known. The functions of the so-called digestive tract are well put by Webster, who says: "The stomach and intestines are the guardians of the metabolic well-being of the system. No normal metabolism can be maintained without their cooperation."

The effect of the ductless glands on metabolism is very certain, though the mode of working is little understood. In childhood the thymus exerts the greatest influence, no child can attain normal mental development without its aid, and anatomically it is known to be the largest in size at the end of the second year; on adult metabolism it apparently has little or no effect, as it usually shrivels up and disappears. The thyroid, next to the thymus, exerts the greatest influence on infant and childhood metabolism. The suprarenal bodies exert the least influence during the growth and the most during adult life.

In making out dietaries for infants and children, to apply what is known of the demands of the body at different ages, and what is known of foodstuffs and their metabolism, seems labored and impractical, but the immense amount of work done on nutrition and metabolism has given data on which to base principles of feeding. These principles are not fixed and certain, yet are at present our safest guide for dietary studies. The ration that offers just enough nutritive elements not to starve or overburden the body and to provide for its growth is the best ration. It is possible to starve the body of a child on a bulky diet of cellulose and starch that lacks the proper proportion of nutrient elements and to overburden the economy with a small but hearty diet of proteids and sugars. No dietary will be satisfactory to physician or little patient that does not take careful note of individual idiosyncrasies, nor will it be followed by a child unless palatable to him.

The data on which we have to depend in prescribing food for children are as follows: The proportion of animal to vegetable food should be as 1:22 to 2 and the proportion of nitrogenous foods to non-nitrogenous is as 1:4 or 1:5, and of the protein given at least 50 per cent. should be of animal origin, because it is more easily digested. The caloric demand of the individual is in proportion to each kilogram of weight or approximately to the age, and to meet this caloric demand certain proportions and quantities of the nutrient elements are required. One gram of fat produces 9.3 calories, 1 gram of carbohydrates produces 4.1 calories, 1 gram of proteid produces 4.1 calories, that is, each gram of proteid and carbohydrates has an equal caloric value, while fat has nearly a double caloric value. For instance, a baby 9 months old should weigh about seventeen pounds, or 7.7 kilograms. The average infant in health needs 100 calories to each kilogram of weight; that is, the 9-months baby should demand 770 calories daily or, in terms of food, mother's milk has a caloric value of 650 per liter, cow's milk has practically the same value. By giving the child one and one-sixth liters of milk his demands would be satisfied, but we know by experience that at nine months a child should be fed on other nutrients than the form of those found in milk to produce the best development; that is, less than a liter of milk should be given and the diet broadened by the addition of other foods, such as gruels made from oatmeal, barley or granum. To these can be added salt, a little cane sugar and cream, both to make them more palatable and of higher food value.

The cereals and sugar give a higher per cent. of carbohydrates which furnish the energy for the increased muscular work of the baby. The fat of the cream with the carbohydrates meets the heat demand and the small amount of vegetable proteid in the cereals aids the animal proteid of the milk and is not sufficient in amount to be too difficult to digest. A child a year old should have the caloric value of his diet increased by giving an ounce of beef juice daily or one-half of one egg, soft boiled, and fruit should be added to the menu, such as orange juice, prune juice and pulp and baked apple. Weaning should be begun at the tenth month, carried on gradually and accomplished by the twelfth month; plain whole milk should be the basis of the diet from this time on till the end of childhood. It should be borne in mind that if the infant is fed on cow's milk instead of human milk that beef juice should be added to the diet later because of the high proteid content of the cow's milk.

Up to 2½ years the caloric value of the diet should be 1,200—with a proportion of proteid 68 grams, fat 66 grams and carbohydrates 78 grams, the proteids and fats being about equal and the carbohydrates more abundant. The following dietary for one day for 2½ years is given simply as a guide for foods:

One ounce of oatmeal with sugar and cream, furnishing	320 C.
One egg, furnishing	80 C.
Two ounces of bread, furnishing	150 C.
One liter of milk, furnishing	650 C.
	1,200 C.

Variety can be made by giving chicken, beef or mutton instead of egg. The bread can be prepared as Zwiebach or toast, arrowroot, baked potato, or well-cooked rice can be added. The cereal may be changed to suit the individual taste. There are certainly enough breakfast foods on the market to choose from. Most of them are clean preparations of the food value of that grain from which they are made. The wheat cereals have a more easily digested form of protein than the oat and the oat than the corn, and the corn products give more energy than the others. Toward the end of this period green vegetables should gradually be added to the diet. Care should be used in adding vegetables rich in protein, because vegetable protein is not so easily digested as animal protein, because it is enclosed in cell walls. that are hard and prevent absorption, and vegetable food is more prone to cause intestinal fermentation, hence increases peristalsis and hastens food through the bowels before it is fully acted on by the digestive juices, and cellulose itself acts as a local irritant, causing increased peristalsis. It is for these reasons that vegetable proteids are valuable additions to the dietary of children suffering from constipation.

From two and a half years to seven years the caloric demand of the body increases up to 2,060. The proportion of the proteids required to produce this value is ninety-five grams, of the fats ninety-two grams, and the carbohydrates one hundred and ninety-eight grams. The proteid and

fat demands are practically the same proportion to each other as in a younger child.

As a guide dietary for one day for a child of seven years the following is given:

	Proteid.	Carbohydrate.	Fat.	Calories.
Oatmeal with milk	25	13.5	1	75
Egg	13	..	11	155
Zwiebach	9	76	1.5	363
Roast beef	30	..	7	191
Potato	4	15	0.5	178
Green peas	6	12	..	74
Baked apple	4.2	26	1.5	138
Chocolate	1.5	6	1.5	45
Rolls	7	50	0.5	238
Milk, 1 litre	18	29	53	500
Butter	..	..	10	100
	92.7	217.5	93.5	2061

The caloric demand of childhood increases gradually up to 2,554 calories at fourteen years. The daily proportion of proteids in grams should be 85.5 grams; of fats 82.1 and the carbohydrates 271 grams. The fats in proportion to the proteids are slightly less and the carbohydrates have risen from twice the amount of each of the other elements to three times as much. The total quantity of the fats and proteids is slightly lessened. The child can digest and assimilate more elaborate forms and quantities of the food elements than the infant. Such as the vegetable proteins in green peas and beans as well as in the dried legumes if well cooked. The animal proteids should still be in excess; this is easily accomplished by keeping milk as a part of the dietary up to puberty; it is an economical as well as adequate food. There are a few individuals with whom milk does not agree; these comprise, fortunately, a small class, but such children are very hard to feed because of the difficulty in keeping up the amount of protein and fat in the diet. The carbohydrate content of childhood's dietary is the easiest to furnish because of the great variety, and of an apparently normal craving in children for one of the chief carbohydrates, sugar. Children, because of their activity, need a carbohydrate easily digested and rapidly assimilated, qualities that sugar possesses more than does starch, though as a food stuff for muscular work sugar has no advantage over starch if there is time for the digestion of the latter and its assimilation. Sugar, two hours after ingestion, will give a gram in muscular power and delay fatigue. Sugar also will furnish fat to be stored in the body; that is one of the essentials in childhood and offers many heat units—a child loses more heat from the skin for every pound of body weight than an adult, so needs more food offering heat units, also fatty foods that an adult uses for heat units are usually disliked by children and sugar makes a palatable substitute, but if given in too concentrated a form or in too great quantities a part is excreted unchanged and the unnatural tax on the excretory organs end in disease. If too large quantities of sugar are given the absorption through the intestines is greater than the liver can assimilate and store up, also too much sweet ferments easily in the stomach and intestines. The time-honored lunch of bread and butter and sugar

meets the demands of the growing child with every nutrient, and for lunches that and milk are not to be excelled. The syrups made from cane sugar and maple sugar are good additions to the dietary. Those made from glucose are more easily assimilated than sugar, so can easily overburden the liver; in a small quantity they are valuable. When the child is no longer on liquid diet he needs more water in his menu, as water is an essential diluent for food and for the digestive secretions of the stomach and intestines, as well as the tissue ferments.

The physician of to-day is often consulted about the dietary of healthy infants, but he has rarely the opportunity of prescribing a diet for healthy children. In the interests of preventive medicine it is to be hoped that that opportunity will be a part of the routine practice of the future. Already work along this line has been done in the endeavor to improve the dietaries of school children, and lists of dietaries are given in our literature on pediatrics. Dr. Somerfield, in Pfaundler and Schlofsmann's new book, has worked out more elaborate tables with the proper proportions of the nutrient elements adapted to different ages than other authorities. He has used colored plates, after Görgensen's new method, to show at a glance the proportions of nutrients of most of the foods in general use for childhood. If doctors could have such plates on their desks it would not be long until each one of us could prescribe the proper dose of protein, fat and carbohydrate as well as the doses of drugs, and with more brilliant results to our patients.

In healthy children the diet has for countless generations taken care of itself. For the delicate and sick child the diet is of vital importance. A general rule in illness is that the food should be given in small quantities and often; there is one exception to this and that is air, for the oxygen of the air is an essential food which should be given fresh, in large quantities and all the time. In illness physical and mental rest should be insisted on, as all food can thus be better digested. In acute febrile cases in childhood milk is the ideal food; it may be supplemented by gruels and broths, fruit juices with egg albumin and water in large quantities.

In tuberculosis, rachitis, marasmus and the wasting diseases concentrated foods of easy digestion are required, as milk, cream, olive oil, beef, mutton, eggs, bread, potatoes and oat cereals, because of their high protein value; a diet lacking in protein will cause anemia, a fact to be borne in mind when prescribing a dietary for a patient suffering from a disease causing anemia. Lavage is sometimes necessary. I have had good results with this method when there was an absolute lack of appetite in rachitis, using milk and beef juice for the meal. In prescribing for constipation the bulky foods containing cellulose should be given—fruits, on account of their cellulose and salts, and large amounts of water. In cases of vomiting, when rectal alimentation has to be relied on, white of egg and peptonized milk are the best nutrients.

In infancy, in gastrointestinal troubles milk should be omitted for a time; gruels, broths, egg albumen are to be substituted, and in convalescence whey and junket should be given before plain milk is a safe

article of diet. Convalescents demand more than normal children. The food must not only repair the waste made by the disease but provide for growth. Generally speaking, in acute disease the nutrient elements and the calories should be slightly lessened and the form of the nutrients should be diluted.

In chronic disease the nutrients and calories should be kept at the full standard or slightly above. In convalescence the nutrients and calories should be increased—a convalescent child may demand even as much as an adult.

When as much study and attention has been put on the diet of children over nine months of age as has been expended on children under nine months, another great advance not only in life saving for children will have been accomplished, but in better developed and healthier bodies and minds for the adult.

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THE OPHTHALMOSCOPE IN GENERAL PRACTICE.*

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DECATUR, ILL.

Methods of physical examination, chemical and bacteriological investigation and the use of the microscope, have all revealed facts which have proved to be of the greatest value to the science of medicine. Indeed, to neglect these aids nowdays is to court disaster. The older physicians, it is true, attained great skill in arriving at correct diagnoses from the symptoms and the general condition of the patient, by the unceasing devotion to careful clinical observation. But while such studies are not in any way less essential to-day, they can be considerably aided by more exact methods of investigation. Among the means by which the extension of the study of objective evidences of disease has been rendered possible, the ophthalmoscope claims a position of prominence. It allows

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the observer to actually see, in the fundus oculi of the patient, the peripheral termination of one of the cranial nerves, as well as a complete scheme of distribution of an artery and vein, and a number of other complex and highly organized tissues. The clinical information gained is direct and first hand, for it depends upon the immediate sense perception of the observer. The nervous, vascular and other tissues which the fundus displays to the eye of the physician are, of course, subject to the pathological changes common to the tissues to which they severally belong; however, whilst these changes, more particularly in their development, are in other parts of the body appreciated for clinical purposes with difficulty and only indirectly by the signs and symptoms they produce, they are in the fundus displayed for direct inspection. The ophthalmoscope is therefore much more than an instrument for the detection of local disease. It gives an opportunity for the direct scrutiny of certain parts of the nervous and vascular systems, and detecting there changes that may mean some generalized pathological condition, localized disease of the brain or of some remote part of the body.

For these reasons ophthalmoscopic examination of the eye-ground is one of the most important methods of medical examination. Unfortunately it is somewhat difficult. This is partly because the familiarity with the technic of the ophthalmoscope, necessary for obtaining a clear image of the fundus, requires a certain amount of training and practice; and partly because the correct interpretation of the ophthalmoscopic image is often a difficult matter. However, this can all be overcome with a little practice and patience. As with any other instrument, the more one uses it, the more dextrous one becomes, and to become expert one should use it in every case. Cultivate it as a matter of routine. Consider the examination of each case incomplete until you have had a glimpse at the fundus. It only takes a moment. A mydriatic is rarely necessary. Have a good ophthalmoscope, a well shaded room, a lamp and the patient, and a very satisfactory examination can be made in a large majority of cases. If this is not possible, it is quite possible, and indeed essential, that the practitioner should be aware of the extent, as well as the limitation of the knowledge gained by the use of this instrument, and the aid it may offer in the recognition of disease.

The ophthalmoscope should be of good make, and for the use I am now considering, I have found the Morton instrument the best. This instrument, being long and narrow, gives better opportunity for closer examination without the patient's nose interfering, and this becomes important when a mydriatic is not used. The mirror on the Morton instrument can be turned at any angle, and this, too, is of importance when examining patients in the recumbent position, or when the source of light is not most convenient.

The source of light for the illumination of the fundus may be an ordinary lamp or even a candle. I have found the Albosol diagnostic lamp, with slight modification, most satisfactory for the sick room.

As far as possible the use of mydriatics should be avoided; not only are they unnecessary, but, in addition, they cause the patient incon-

venience; their use also means a waste of time, and in elderly patients they carry definite risk of glaucoma. Atropin should never be used, but in exceptional cases in which the pupil is so small that an inspection of all parts of the fundus is impossible, small gelatin discs of homatropin, with cocain, 1/150 grain of each, are most satisfactory, the paralysis of accommodation generally lasting less than 24 hours. A dark room is by no means necessary. Drawing the blinds of the sick room will give quite a sufficient degree of darkness. In cases of severe illness this, obviously, may be the only available method.

Time will only allow me to indicate the conditions met with in medical practice, where the ophthalmoscope can lend aid to the physician.

First in importance, is the aid it sometimes gives in differentiating between organic and functional disease. An optic atrophy or neuritis tells us immediately that we are dealing with organic disease, however hysterical or neurasthenic the general symptoms of the patient may be. Disturbance of sight is common enough in hysteria, but optic atrophy necessarily means something more than functional disturbance, and cannot be due to hysteria. In the diagnosis of cerebral tumor, the ophthalmoscope performs a welcome function, for with headache and vomiting, or other obviously cerebral symptoms, an optic neuritis or choked disc discovered, causes the case to pass out of the region of probability into that of practical certainty.

In meningitis we may get a neuritis, but it is unusual. In the tuberculous form or generalized tuberculosis I have never seen the tubercles in the chorioid. In renal disease we have a great help in the ophthalmoscope. Albumin may be absent from the urine and still there be a typical albuminuric retinitis. This is seen sometimes in chronic interstitial nephritis. Even if the urine does tell the story, a known retinitis is of great prognostic value, for a retinitis in renal disease means the outlook is bad, these patients rarely living two years. The eye men send us cases again and again having suspected the kidney trouble from the eye alone. In diabetes the retinal changes are late and may be similar to those of nephritis.

In tabes, optic atrophy may be the first symptom of the disease and the chief practical value of its recognition is found in those cases where the spinal symptoms are slight and ill defined. It has some prognostic value in that early optic atrophy generally means that the spinal symptoms are delayed. In disseminated sclerosis we know what difficulty there is in distinguishing this disease from functional disturbance. Hysteria is capable not only of mimicking every objective symptom, but sometimes is associated with it in the same patient. An optic atrophy here would be a decisive factor in the diagnosis, for it would be evident that the disease had an organic basis.

Paresis is another disease, the earliest symptoms of which are usually purely functional, and a differential diagnosis is at times attended with great difficulty. If, therefore, an objective sign in the eye can be determined, a vast assistance is given to the problem.

Pernicious anemia is suggested when, with the general evidence of anemia, hemorrhages are found in the retina. The fact is of much diagnostic value, as such a condition is present in a majority of cases, and when found should stimulate further search for the pathognomonic sign in the blood, the megaloblast. Valuable evidence of the activity of the syphilitic poison, perhaps at a long prior date, can be obtained by the use of the opthalmoscope. This is in the shape of patches of chorioidal atrophy, each surrounded by a border of pigment; or there may be a diffuse retinitis with fine dust-like pigmentation; or fine opacities may be found in the vitreous. This is all of importance when we know the difficulty of obtaining specific history when many years have passed since the date of primary infection.

It would be easily possible to produce clinical records to substantiate the value of the ophthalmoscope in the above diseases indicated, and indeed also in many other diseases; but to attempt these ends would occupy too much of your time, and is outside of the purpose of this paper. The aim is rather to draw attention to an aid in diagnosis, which has not had the importance it deserves, and one which we cannot afford to neglect.

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SUBJECTIVE SENSATIONS OF SMELL AND THEIR SIGNIFICANCE.*

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One of the interesting symptoms that has not received its full share of recognition at the hands of the rhinologist is the subjective sensation of smell, or parosmia, as it is most generally referred to in the American and English literature. The Continental writers, however, designate it by other names. Hajek[11] refers to it as kakosmie, Chiari[4] as kakosmie subjectiva, Vierodt[40] as osmic paresthesia, and Parker[31] calls it cacasmia. The definition of this symptom differs, depending on the conception the author may have of it pathogenesis. Kyle[18] affirms that it is a perversion of the sense of smell superimposed on an otherwise abnormal function, whereas Gould[7] defines it as a hallucination of smell which is usually unpleasant. Hajek[16] objects to the classification of this symptom as a hallucination because, he says, it will be shown to be due in almost, if not all cases, to a definite pathological change which will account for this perverted function. To this view the writer also subscribes; a study of the literature and clinical experience confirms this opinion.

Etiologically, the causes producing this symptom fall into groups as follows:

I. EXTRANASAL.

1. Anatomic changes.
2. Infections.
3. Drug poisonings.
4. Neuroses.

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II. INTRANASAL.

1. Foreign bodies in the nose.
2. Changes in the mucous membrane.
3. Changes in the bone.
4. Sinus disease. (a) Acute. (b) Chronic, a, open; b, closed.

Anatomic changes are varied and numerous. Trauma may affect the olfactory nerves and so give rise to parosmia. This is especially true of fractures of the base of the skull. Koenig[16] records that he found this symptom three times in about 100 fractures of this region. Injury to the vault may also produce dislocation or tearing of the nerve. Tresilian[37] relates a case of a woman of 22 who fell from a trap, her head striking the ground. She was unconscious for a few hours, then dazed and had a severe headache and pain down the back of her neck for some days afterward. She could neither taste nor smell. The sense of taste returned in a short time, but her sense of smell had been lost and she was always conscious of a nasty subjective sensation of smell like bad hops, which was equal in both nostrils. Tests showed the fifth nerve uninjured; the eyes were negative; treatment unavailing, so Tresilian assumes the condition must have been due to injury to the olfactory bulbs, with laceration and perhaps partial separation.

Tumors of the gyrus hippocampus and gyrus uncinate and lesions of the anterior temporal lobe also cause subjective sensation of smell. Thomson,[28] Osler,[29] Wood,[41] Kirk.[15a] Infectious diseases may cause a neuritis of the olfactory nerve. Zwaardemaker, Frankle-Hechwart[5] and Tilley[36] all note changes in the sense of smell which can only be ascribed to an inflammation of the olfactory nerves. The disease causing this disturbance, more than any other, is influenza. Onodi and Tilley have each given the history of such a case. Drug poisonings occasionally produce parosmia. Lennox-Browne[2] notes that it may be an occasional symptom of lead poisoning, and Rose,[32] in his classic work on the pharmacology of santonine, states that this symptom occurred sometimes when large doses of that drug were ingested.

The neuroses form an interesting group, the best known of which is the aura of epilepsy, first described by Jackson,[13] in 1866, and since that time it has been considered one of the classic symptoms of this disease, and one would suppose from the literature and text-books that it occurs in almost every case of this affliction. This, however, is incorrect. Gowers[8] found that out of 274 cases of true epilepsy, sensations of smell preceded the fit in only 12 cases. In most of the cases the sensation was unpleasant. One patient described it as an odor like "matter"; others compared it to gas and sulphur. The smell of gas of some kind is sometimes so strong that it seems to pervade the head and even the whole body. Spratling[35] described the case of a male epileptic who nearly always had an aura which he described as a snuff of bad air; the fit appeared after two or three inspirations that were charged with this disagreeable odor.

Parosmia may be one of the first symptoms of insanity. The patients

complain of being exposed to the most noxious odors and sometimes insist that their food is mixed with fetid or fecal matter. Kraft-Ebing[17] mentions this as one of the symptoms of sexual paranoia, and Hall[10] has pointed out that it occurs also in sexual neurasthenia. Climacteric neuroses (Tilley[26]) frequently give rise to this perversion of the sense of smell, and it is also frequently of hysterical origin, Beyer,[1] Vierodt,[40] of which the following case of Miss B. S. is an example: A saleslady, aged 20, presented herself with the complaint that she had a headache and a peculiar subjective odor resembling burning straw. Examination of the nose showed nothing abnormal. The antra of Highmore were punctured on successive days with a negative result. A few days after the puncture the patient reported that the odor had gone. The case was referred to Dr. D'O. Hecht for an opinion, who reported hysteria with headache (migrainous).

Munger[24] reports a very peculiar case, in which the subjective odor was pleasant. A man of 50, a generous liver, was a sufferer from headache, and was overpowered by a persistent odor which he described as "heliotrope." All his odor perceptions were the same heliotrope. The parosmia came on gradually and gradually disappeared. The nose was free from any pathological condition. To account for this peculiar condition, Munger says, arteriosclerosis was present to a marked degree, which must have involved the olfactory bulb, affecting its nutrition primarily and its function secondarily.

The second division of the subject relates to the intranasal causes of parosmia, and includes all factors in the nose itself and its accessory cavities. Foreign bodies in the nose may be various and may cause the symptom under discussion if they produce suppuration or a disturbance in the mucous membrance. Killian[15] reports two very interesting cases of parosmia caused by fetid plug in Rosenmuller's fossa, which, when removed, caused the subjective odor to disappear. Aside from foreign bodies, etc., the glands of the mucous membrane may produce secretions which give rise to subjective offensive odor. This may be constant or interrupted. La Coarret's[19] case of a patient who at stated intervals had a subjective bad odor and who was cured by regular nasal massage is an instance of this class of causes. Hypertrophic rhinitis also comes in for its share of attention. The parosmia of these cases, as reported in the literature, usually follows a coryza. Noquet[26] reports a peculiar case, of a man of 54, who, after a coryza, when eating, developed parosmia. The patient was in no other way sick or nervous. Examination revealed a hypertrophic mucous membrane of the middle turbinal, which was in contact with the septum. After destruction of the hypertrophy with the cautery the odor disappeared.

Chappell[3] and Onodi[28] each report a case in which the inferior turbinate was involved. Onodi's case was a man of 37, who developed an acute coryza which lasted a long time and renewed itself often. The coryza was accompanied by much secretion, the patient using eighteen handkerchiefs per day. In addition, there developed an erysipelas of the

face and parosmia. The patient smelled musk, petroleum and urine. No other findings in the nose than a chronic catarrh of the mucous membrane, evidenced by a large, swollen inferior turbinate. The latter was cauterized and the catarrh treated. The result was very gratifying. The odor disappeared and the patient was cured. Onodi adds that in this case the odor was due to peripheral irritation. The therapy is the proof. Since the cases follow coryza, one may be led to believe that they have had to deal with an acute ethmoiditis, which may also give us the kakosmie, the odor of burning straw, etc., which are not infrequently noted in these cases (Uffenorde[39]). Parosmia is noted in almost all cases of acute sinusitis of the antrum of Highmore and many times by those suffering with the chronic form of this disease of the open variety.

The foregoing is of interest, but much more so is the chronic sinusitis, which shows this nasal symptom only, or in which it is a very prominent symptom. Ziem,[43] in 1888, reported cases of parosmia that were called "hysterical," but which he showed to be suppurations of the antrum of Highmore. Moldenhauer,[25] in 1886, wrote of cases of this kind, as did Lichtwitz-Jeanty,[21] in 1891, and Moure,[23] in 1899. Zarniko[42] wrote at a later date, that he believes the large percentage of parosmia to be due to closed accessory sinus disease, and to strengthen this opinion he reports four cases that other physicians have held to be either hysteria or hypochondriasis. In all four of his cases puncture of the antrum revealed pus, and he recommends this procedure in all cases of parosmia. Chiari[4] also takes this view, and says the odor is noted by the patients from time to time, and especially when pus is discharged from the ostium maxillare. Hajek[11] expresses himself as follows: "Typical are the falsely designated hallucinations of the sense of smell in the sinus suppurations. The disturbance so manifests itself that the afflicted one from time to time, without any warning, perceives an odor in the nose. These are latent empyemata (especially of the antrum of Highmore and the ethmoid labyrinth) which go on for years without any other symptoms than the odor hallucinations."

Four cases in point I wish to relate.

CASE 1.—O. O. Occupation that of a professor and lecturer; aged 62; of spare habit, but very active. The only illness he remembers are several attacks of influenza during the last ten years, but not until the last two years has he noticed that on the least exposure he would take cold, which was manifested by a coryza and later by a slight bronchitis. During the last year he suffered from a continual tickling in the throat and a hacking cough, most troublesome in the morning, during the night, and which when he attempted to talk for a long period became almost unbearable. He was at times compelled to shorten his lectures in order that he might recover. This cough and tickling were accompanied by a hydrorrhea (which varied in intensity from time to time), sneezing and a distinct parosmia. Various diagnoses were suggested in the course of his treatment; one called it a nerve cough; another, follicular pharyngitis, for which the follicles of his pharynx were cauterized. He was sent to Mackinac for his supposed hay fever. I saw him during September, 1906.

The examination showed a hypertrophic rhinitis on both sides, with a fair breathing space on the right. The only obstruction other than the rhinitis was a spur of the septum. The left side was almost totally occluded and hanging

from the middle turbinate were two medium-sized polypi of the mucous variety. No pus was visible in either side of the nose; even after repeated examinations none could be detected in either meatus. Transillumination was negative, as was the examination under cocain and adrenalin on four successive days. In spite of the findings, because of the persistence of the parosmia, the left antrum was punctured. The washings showed a large quantity of thick, flaky, stinking pus. This odor coincided with that of the subjective sensation. After the third washing the subjective odor disappeared, and there was a noticeable improvement in the laryngeal and the pharyngeal symptoms.

CASE 2.—F. W., male, aged 41, painter by occupation. Has suffered during the last ten years from two attacks of influenza. He also had pneumonia of the lobar variety, and in 1904 took one of the cures for inebriety. Following the last attack of the influenza the patient has been haunted during all of his waking hours by the sense of an awful stench in his nose. So bad has this been that he has been practically unable to work. He consulted all the general clinics in the city, especially the neurologic departments, where, according to his statements, his case was diagnosticated as hysteria.

The examination shows a man of large bone and fairly well nourished. Neurotic temperament, very talkative, and fearful of pain. The nose shows a slightly deflected septum to the left. A slight hypertrophy of both turbinates on the left side. The right side shows considerable hypertrophy of both turbinates. Posterior rhinoscopy shows both posterior ends enlarged, the right more than the left. The vault of the pharynx is free. The pharynx somewhat injected; the follicles prominent. The larynx false cords somewhat hyperemic, and the true cords a pale pink, somewhat thickened. The trachea shows also some redness, the segments being only outlined. No pus could be seen anywhere in the nose or nasopharynx. The patient complained only of occasional cough, and his voice was somewhat harsh and grating. The nose was cocainized and adrenalinized twice at an interval of a week, and examined for pus or crusts, but the examination each time was negative. Transillumination showed a slightly darker shadow on the right side than the left. The patient, after much persuasion, finally allowed the puncture of his right antrum, and we were fortunate enough to find a fair quantity of yellow, curdy, stinking pus, which corresponded to the subjective odor. I was able to wash the antrum twice more, and then the patient disappeared, because an operation for permanent drainage was suggested.

CASE 3.—Mrs. S., mother of two children, aged 37. Gives no history of any infectious disease, except those of childhood. Has had an occasional toothache, the right upper molars having been especially affected. Complains of a constant headache, which is principally frontal; pain has been constant during the last year, but not severe. The nose is occluded on both sides. The patient has a cough, more intense in the morning, and stops as the day advances. Lately has complained of a burning sensation in the pharynx and a feeling as though there is sand in the throat, parosmia for the last six months constantly; before this time, for about four months, only noted in the morning on arising. Says the odor resembles burning straw. The headache has disturbed the patient more than the parosmia, which she thought was the odor from the neighborhood in which she lives. The patient had occasional "fits," which her attending physician reports were purely hysterical. Her headaches were thought not to exist, and were only an excuse to come to the dispensary and visit with her friends. She had been examined by a rhinologist a year ago, who prescribed a spray and a cathartic. She used the spray three times a day as directed and the cathartic when needed. This examination was before the parosmia developed.

Examination shows a woman of medium height, phlegmatic disposition, and with an air of depression. The nose shows a slightly deflected septum to the left. The left hypertrophic inferior turbinate and the anterior end of the middle turbinate occluding the anterior portion of the olfactory fissure, impinging very closely on the septum. The right side shows polypi and the inferior turbinate

hypertrophied. Posterior rhinoscopy shows enlarged posterior ends on both sides, but no pus noted. Pharyngitis lateralis and slight injection of the posterior pharyngeal wall. Larynx and trachea negative. Transillumination negative.

Removed the polypi (five) from the right side, and the enlarged anterior end from the left. This procedure caused some diminution of the headache, but the parosmia still persisted, and also a "dull feeling in the head." Puncture of the left antrum of Highmore was negative, but the right side revealed a small amount of flaky pus. After the washing the odor disappeared from the nose; as did the headache. This condition would last five or six days after the washing, when the headache would return coincidentally with the parosmia. After four washings had shown the failure to produce a cure, I resected the anterior end of the right inferior turbinate; made an opening in the antrum for drainage. Since the operation (Jan. 17, 1907), there has been no odor or headache.

CASE 4.—Female, of 35; mother of two children. Was sent with word that she had consulted a neurologist, and had been examined by a rhinologist, both of whom found nothing, and said that in all probability the woman was insane, since she persisted that she always had the odor of burning meat in her nose. She could not be argued out of her delusion, and the more she was told that it was imagination on her part, she became violently demonstrative, and then would suddenly begin to cry, because she claimed no one appreciated her, and no one believed her. Disease of childhood; one attack of influenza six years ago (1901); about two years ago contracted a cold, which was followed by neuralgia of the face on the left side, which lasted for a week, then gradually improved. Patient noted at the time that when she blew her nose, there came a large volume of yellowish mucus. About eighteen months ago the odor of burning meat appeared, at first noticed in the morning, then during the whole day.

The examination shows a woman of large habit, flabby muscles, flushed face. The mouth shows a thick, flabby tongue, coated with a white fur. The pharynx slightly injected and dry (pharyngitis sicca). The larynx negative. Nose: Septum deviated to the left. Hypertrophy of the turbinals of both sides. No pus or secretion could be noted on either side on repeated cocainization (four times) in the course of a week. Transillumination was negative. The puncture of the right antrum was negative, but from the left a quantity of very foul-smelling, thick pus was washed, which the patient insisted was identical in odor with her subjective sensations. This procedure was carried out twice; then a Luc-Caldwell operation was done. The discharge had not ceased when the patient left my care. After the first washing the subjective odor disappeared, and as long as she was under my observation it did not return.

Apropos the last case reported, Ziem[43] tells us of two cases of insanity as the result of parosmia. The first, a girl, just blossoming into womanhood, was taken to an asylum; and the second case, a youth, the nephew of a well-known historian, was also incarcerated for hallucinations of the sense of smell, and not until the autopsies, which showed a chronic empyema of the antrum of Highmore, were these cases cleared up.

CONCLUSIONS.

Parosmia is almost in all cases due to a definite pathological condition.

Parosmia is in a large proportion of the cases due to suppuration of the accessory sinuses of the nose, and then most generally the antrum of Highmore.

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STUDY OF DIAGNOSIS AND PATHOLOGY SHOULD NOT LESSEN OUR CONFIDENCE IN THE INTELLIGENT USE OF DRUGS.*

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My relation to this subject is considerably similar to that of an attorney who is assigned to defend a client whom public opinion has already tried and condemned. The attorney realizes that facts and arguments are largely on the other side. Yet nevertheless his duty towards his client compels him to prepare the best defence possible in the case. I believe that my comparison is quite true, if the profession were the judges. But the non-medical public, not versed in the science of medicine, would believe my client had a good chance of acquittal. So between the proofs advanced by science on the one hand, and the expectant methods of treatment usually followed on the other, lies the scope of this paper. It is evident my subject suggests its own limitations. It negatively infers that drugs are a doubtful equation in the treatment

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of disease. That such is true in the majority of pathologic conditions has been made painfully evident to every physician in all but too many instances.

That drugs are plentifully used in the treatment of disease, there can be no question. Antedating possibly primeval antiquity, the mound builder, the cliff dweller, and the cave man had recourse to drugs in medical practice. Whether primitive man by observation of the animals, who seemed to have some instincts for alleviating their own ills, copied after them, or whether by some instinct of his own which later developed into a more or less practical knowledge, we cannot tell. But true it is that there exists a positive belief in the human mind that there is something in Nature which, if found, will cure all ills. In considering the universality of this belief I am inclined to the opinion that it is born of that same optimistic desire for a compensatory condition of Nature, similar to that other well nigh universal belief of a religious nature which teaches of a perfect hereafter; a condition where there will be no pain, nor sorrow nor death, in other words perfect idealization. Some one has beautifully expressed this universal optimism when he said: "Hope springs eternal in the human breast."

The comparison, I believe, holds good, because disease of body and unsatisfied opportunity for perfection are the two most conscious facts that have ever been impressed upon the human mind. Whether or not the idealism of Heaven, or Nirvana, or Paradise, or the Happy Hunting Ground is logical is for the theologian, not the physician, to say. But the idealism of medicine, the finding of a compensatory or opsonic substance which will allay disease, has in a measure been realized and will, I believe, be fully eventuated in the days to come. The practice of medicine as intimated a moment ago is probably as old as man himself. But the science of medicine dates back but a few decades. In these latter days we have set up such distinctions as alone can be supported by scientific proof; and scientific proof of to-day is always the sort of proof which must see and know. So while we must admit that humanity has had its doctors and soothsayers and oracles and necromancers for hundreds of centuries, it never has had its scientific medical man until he was able to prove what was the real tangible cause of disease. This, as said before, was but a few decades ago. The scientific man has finally opened the portals which closed from him the mysteries of the lowly life of microbe and bacteria, and now he begins to learn the intimate relationship of these lowly protozoa as causative factors in the production of many diseases. No correct conception can be entertained of disease until he knows each step the microbe makes in its attack on the human body, the change of tissue that takes place, the marshalling of the powers of Nature by that unseen hand called Resistance, or that establishment of physical peace called Immunity. When everything concerning the consistency, habitat and mode of life of the pathogenic germ is known, then and only then can there be employed intelligently against this invader that destructive agency usually known as drugs.

I intimated at the outset that my subject had its limitations. The limitations refered to were the few diseases which we really can control by drugs. Among these may be mentioned malaria, syphilis, hydrophobia, tetanus and diphtheria. With these we have a fairly positive assurance that drugs or serum come quite up to the rôle of specifics. Among the more common diseases not as yet influenced by drug administration may be mentioned typhoid, pneumonia, tuberculosis, measles, mumps, scarlet fever and whooping-cough. Reticence forbids me from mentioning more. This brings me up against the kernel of my subject, viz., what shall we do in these diseases? If we say typhoid is not curable with any known means at hand, that usually it is a disease of three or four weeks, that if left alone the patient has the best chance for recovery, then when we are called in as physicians, what shall we say? Shall we do as the Mullah when called to the bedside of the sick mussulman, write Kismet in the brazen bowl and depart? Shall we calmly inform the friends that no known therapy has yet been produced that will limit for a day the duration of the disease, and that the least medicine given the better the chance for recovery? Yet the abundance of medical proof bears me out in saying, we are up against a condition that so far has defied the cunning of man to cure. I imagine I hear some wag say, turn them over to the Christian Science, or to grandma. But this does not cure the patient, nor lessen our responsibility. The patient has called us in because as physicians he believes we can cure him. We come to the case, not in the belief that we can cure him, but as men whose judgment is matured by experience, and from this plenitude of experience we might be of some satisfying service to the patient. We have not acted dishonestly when we have carefully examined the patient and noted the changes each succeeding day. I am sure I have the concurrence of your opinions when I say that admitting we cannot cure the patient by our art, the patient is much safer in the hands of the physician who knows the inefficacy of the drug treatment than he would be if entrusted to those whose knowledge had never been born of experience.

As scientific men we have made great progress when we have weighed all the cures in the balance and found them wanting. It is a great thing to know your evidence, even if your evidence is negative. Then you are not apt to have mortifying failures resulting from the illusions of a hopeless drug therapy. In this case we are absolutely driven back to the recourse that Nature has resources of her own, and wiser than we, will effect a cure. This Nature does in a majority of cases, but fails in a distressing minority. It is to save this minority and to establish a certainty regarding all, that the man of research bends his energy. Prior to the serum treatment in diphtheria Nature cured about 60 per cent. of her cases. The loss of the 40 per cent. in which Nature failed pinned the crape on thousands of doors, and the voice of the wailing heard from within proclaimed that the children were not. This enormous loss to the family and state, in which we might compare it to the Children's

Crusade of medieval days, is now, thanks to the investigators of science, reduced to less than the fraction of 1 per cent.

As a layman, before the days of antitoxin, I well remember the horror that seized upon all households when the ominous word diphtheria was spoken. Vividly there arose before no inflamed imagination the picture of the hearse and grave, and that picture transformed itself into an unfeeling reality in thousands of homes. No human tongue can tell, no statistician can compute the great good already done the family and state by this one victory of science over that scourge of childlife, diphtheria. But I must not wander from my subject to sing pæns on the work already done. But I come back to my typhoid patient again, I take his pulse and temperature, examine the sordid teeth and tongue, percuss the tympanitic belly, boil his urine, and examine his stools. I note that he is in the grip of a disease in which millions of a specific bacteria have colonized in his glandular and vascular systems, besides have invaded the recesses of the brain and cord. To see how his powers of resistance are I listen to his heart and inquire for any former disease. I auscultate and percuss the lungs for the same. The spleen is felt. The integrity of the liver is ascertained. I then ask myself, what can I do for the patient? If I cannot cure the disease, can I render him enough comfort to make my services of benefit to him? In this particular instance a physician is possibly a luxury. Yet an useful luxury withal, the same as music and art and all other embellishments which contribute their quota towards civilized society, and so again on the plea that the physician may see a time when possibly surgical intervention may be needed or some other untoward condition may arise demanding his judgment, I would say that the case demanded the services of a physician.

So then I would remove the sordes from teeth and tongue, use water internally and externally to quiet delirium and flush the secretions. I would administer a suitable liquid diet, give stimulants when needed, would use the ice pack and styptic drugs in hemorrhage, and in a word I would consider it my professional duty to ease up any depression and lend a helping hand whenever the powers of Nature signal distress.

If I should say anything concerning the routine drug treatment in those diseases not specifically influenced by drugs I would give it as my belief that many of our patients are over-drugged. This is not said in anywise to reflect upon the professional right of any practitioner to administer just such drugs as his judgment sees fit. But I believe that many patients are needlessly over-drugged by physicians who are somewhat too credulous in the claims of their materia medica and drug circulars. Until the riddle has been solved with reference to those diseases which are still treated expectantly, we as physicians will best serve our patients not by placebos or suggestion or Christian Science, but by a sensible view of the case in offering to Nature a helping hand when she desires our support.

SOME USES OF THE *X*-RAY IN THE HANDS OF THE GENERAL PRACTITIONER.*

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The object of this paper shall be nothing more than to show the results of the *x*-ray treatment of many diseases and some uses to which it has been put by me in my practice. I make no effort to tell you how you shall use it nor dictate how to get the best results, but simply to state that for a little more than six years I have owned a static machine and have put it to as many uses as my practice would permit. I was surprised when I commenced its use, at the number of people who thought that the *x*-ray could be used to diagnose even so much as imaginary ills, and even yet some few think that anything should be seen with it.

One of the most common uses I have had for it has been to diagnose fractures and determine the extent of bone lesions, also to diagnose dislocations. I have in mind a case which came to me recently, in which the arm around the elbow was terribly swollen as the result of a traumatism and it was impossible to tell any more about it than that it was simply swollen, because the injury had been received 48 hours before. A skiagraph was taken and nothing else could have revealed at that time the fact that he had sustained a fracture of the olecranon process. Another in a boy of nine years old showed great swelling in the entire arm and severe pain a week from injury. Nothing could have been done without an anesthetic and even then it could not have been determined so well without a skiagraph that he had sustained a fracture of the external condyle with complete dislocation of both bones of the lower arm at the elbow joint. The results are so much better and so easily obtained that no man should neglect to see that one is used whenever it is possible, whether he has it in his possession or not. The location of foreign bodies can be made in no other way and it is one of the easiest things to do with the *x*-ray.

The diagnosis of pulmonary diseases is also said to be possible. I have made some attempts at this, but for some reason have not been successful enough to justify me in saying that it is a success. In the treatment of lupus I have been highly pleased with the success I have had. The results have been so nearly perfect that it seems almost proper to call it a specific for that disease. In the treatment of eczema I have not used it at all, and can not speak from experience of the results. In the treatment of sycosis, I can say that the results were eminently satisfactory, recovery being perfect in the few cases I have treated. Favus is also said to yield nicely to the *x*-ray, but I have had no experience with it. Several cases of epithelioma have come under my observation and all of them have responded to the treatment nicely.

In carcinoma I have not succeeded so well. One case of carcinoma of the breast progressed just as rapidly under the treatment as it did be-

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fore, but I commenced the treatment late in the disease. One case of carcinoma of the cervix yielded nicely under the application of the *x*-ray by means of the Caldwell tube, but returned just as rapidly after the treatment had ceased. I have had one case of sarcoma, being that of the hand. Amputation at the upper third of the lower arm seemed to get entirely above it, and with daily exposure to the *x*-ray it healed perfectly within the proper time. No recurrence at the site of the amputation, but the patient died in four months from date of amputation from sarcoma of internal organs.

I have treated many cases of superfluous hair on the face, and in not one have I witnessed a failure to remove the hair. In the course of a few months they invariably return, but usually are not so hard to remove the second or third time. Most of my cases became discouraged and quit the treatment before perfectly satisfactory results were obtained, but in one case I removed them four times, another six times, and in neither has there been a return and three years have elapsed in each of the cases since the treatments were discontinued.

Another diseased condition which has resulted well from this treatment is acne. I have treated several such cases and in all have received highly satisfactory results. One case in particular of acne vulgaris, the skin is as fresh and clear as if nothing had ever been wrong with it. The result of twelve exposures. Radiographs for the diagnosis of gall stones I have not tried. For renal calculus I have tried to get good radiographs, but have not succeeded in any of my few attempts.

I have been successful, or you might say lucky, in securing the minimum of ill effects. In a little over six years I have had but one *x*-ray burn to my credit and it is pretty well healed at this time. I produced it by trying to do some good by giving long exposures to a tubercular knee joint. It did a very little good and resulted in a dermatitis, which lasted for three years. However, the many uses to which *x*-ray may be put and the good results therefrom makes it thoroughly applicable to the general practitioner and should be either in the possession or in reach of every one in the general practice of medicine.

DISCUSSION.

DR. EMIL G. BECK, of Chicago: Dr. Edmundson has outlined the general uses of the *x*-ray, but I wish to warn the members of the Society that there are various conditions in which the *x*-ray may do a great deal of harm. For instance, in using it for acne or epilation. The late results, say after three years, are dilatation of blood vessels, called telangiectases, which are practically incurable. In treating sarcoma or carcinoma of the breast, we have noticed that after the patients have been treated for a year, or have noted the result after that time, this dilatation of blood vessels was seen on the skin, and while it does not make much difference whether the telangiectasis appears on the abdomen, if it should appear on the face of a young lady after a few years it would be very distressing. Many such cases have been reported from Vienna in a paper recently published.

There is another contraindication, namely, the *x*-ray should not be applied in women of the child-bearing age, for the reason that its use may sterilize that patient. For the same reason in women eczema around the genitals should not be treated with the *x*-ray. Some of the uses of the *x*-ray have not been men-

tioned, in which conditions its use is very beneficial. I refer to the treatment of leukemia and sarcoma. Some cases of these two diseases are amenable to the *x*-ray treatment. There are cases on record of large tumors, particularly sarcoma, having disappeared under this treatment.

DR. S. E. MUNSON, of Springfield: I would like to ask Dr. Beck if these cases of leukemia treated with the *x*-ray do not have secondary anemia as a serious complication, and after a few months frequently causing death?

DR. BECK: That point is well taken. Blood examinations ought to be made and if the leucocyte count falls below 7,000, the treatment should be stopped at once. We have had one death of a patient whose spleen was reduced to one-quarter its size, and the leucocyte count from 130,000 came down to 1,000, but the patient died from intra-abdominal hemorrhage. We were quite surprised. I looked up the literature and found that it is a contraindication to keep on treating such patients two or three times a week when their leucocyte count falls below 1,000. The leucocyte count should be constantly watched during the treatment of leukemia.

DR. MUNSON: What was the red cell count?

DR. BECK: I do not remember it.

DR. EDMONDSON (closing the discussion): As to the effect on the blood vessels referred to by Dr. Beck, I have not observed this in the cases I have treated. In my paper I only gave the results of the use of the *x*-ray in my hands. I have not had an opportunity to observe the results of the *x*-ray in the treatment of leukemia.

NEW PUBLIC CHARITY EPOCH IN ILLINOIS.*

WILLIAM C. GRAVES.
Executive Officer State Board of Charities.
SPRINGFIELD, ILL.

Dr. Carriel, Miss Poston, Members of the Training School Graduating Class, and Ladies and Gentlemen:—So much has been written and said—good and bad—about the Illinois State Board of Public Charities during the last two years, that conflicting opinions exist regarding not merely the board, but the great state service over which it has moral supervision. Those people who know the truth, when sifted from the blinding chaff of politics, applaud the board for pioneer work in helping to bring about a new epoch of advancement in our public charity equipment and service. Those who are blinded by the flurries of political chaff wonder whether it is true, or even believe, that the Board of Charities is made up of negligent persons, who stand by and smile as horror upon horror is perpetrated by you—by you, who sit before me to-night—and by your brothers and sisters in the state service in other institutions. You know the truth about the Central Hospital for the Insane. You know that this institution, not by any means perfect, but not satisfied to stand still, is progressing, day by day, as its educational methods and its funds will permit, toward a better equipment and service. You know, also, to cite a specific case, that the published story that William Menezes was brutally treated, here in this hospital, is utterly, and to you and to me, ridiculously false. So I could go on and cite "horror" after "horror" here and in other state charitable institu-

* Read before the graduating class of the Central Hospital for the Insane Training School at Jacksonville, Ill., June 19, 1908.

tions that, when investigated, amount to nothing. I lack time, you lack patience to listen to such a recital. The truth is each institution is not perfect, realizes its shortcomings, and is forging ahead, during a grand epoch of advancement, just as this institution is; and with like handicaps.

NATURAL OPPOSITION TO PROGRESS.

But let us study this matter a little here together to-night. It is vital to us for we are stewards answerable to the people of Illinois. We know that all growth requires force. Force when used meets opposition. We know that. If the growth be of a plant force is required to crowd and shove it up through and down into and out into the opposing earth. If the growth is of some movement to improve the condition of human beings, opposition comes from those who are to lose, because of dishonesty or incapacity, as individuals, or who imagine they will lose, on account of the new order sought to be established. Sometimes these movements are accompanied by savage brute force. Witness the French revolution; with the chop, chop, chop of its guillotine. Witness our American revolution, which tore us from England and floated our ship of state, on a sea of patriots' blood, into the harbor of national independence. Witness, further, our American Civil War. It blew the shackles from the black man by grape and canister, which, in such service, soaked the land of the south with the life blood of thousands of brothers. Such revolutions are horrible necessities.

But there are peaceful revolutions. Evolutions, perhaps, is a better term. Force develops them too. That force is expressed in education and persuasion. Such epochs come in all commonwealths. I believe they are ordained by the Creator. The coming of such periods does not necessarily cast reflection upon those who maintained honestly to the best of their understanding and opportunities the old order of things. However, human nature is sensitive. When the force that shoves and jostles a new order of things into being begins to apply itself, it meets opposition, just as the tree does in its struggle to rise into the sunlight and grow, bloom and bear fruit for many to eat. This is equally true of the new order by education and persuasion and of the new order by bloodshed.

During the last few years one of these bloodless evolutions has been under way elevating our state charitable institutions to a modern level of efficient service and equipment. If the inevitable opposition to this movement, from persons who could not or would not understand, had not taken an attitude requiring sharp and decisive explosions of energy to overcome it, the entire trick would have been turned without so much as one harsh word. The Governor of Illinois and his State Board of Public Charities, in this service, had no enmity toward any individual. Their desire was to improve buildings and equipment and the system of caring for and curing and preventing the growth of the great, wretched defective and dependent classes of our population. But, as the result of what we consider unwarranted opposition, it became necessary to jostle and to shove. Many harsh, harmful, false words have been spoken dur-

ing this stiffening of muscles. There promises to be much more plain talk on both sides, especially in the drum beating and cymbal clashing of a political campaign. But, words or no words, the evolution in our public charity service is now near its completion so far as fundamentals go. Only one such step remains to be taken. Already there is well under way the physical rehabilitation of our institutions, some of which presented two years ago a condition of partial wreckage and inadequacy in various ways, due to a dozen years of politics of the bad sort practiced by both political parties. To-day the system of medical and nursing service for mental defectives is equal to any like system anywhere. The one big step which remains to be taken is the establishment of a new system of administration for the seventeen state charitable institutions, looking to co-ordination and greater economy. We have just come out of a giant's struggle over this question, which resulted in a victory for the State Board of Charities, whose abolition was sought. That was the grand mistake of the opponents of our progressive board—to try to eliminate supervision by distinterested persons. Next winter, having in the meantime received additional counsel from the best informed men, we shall submit recommendations for a modern, well balanced system of administration embracing the efficient points of diverse systems in use in various parts of the world.

The result of all this work, already in evidence, is assured, even to the final step yet to be taken, because the men and women supplying the force for the upward movement are earnest in their purpose, honest in their motive, and intelligent in their method, and because they are applying the force for better things at the moment when the great majority of the people of Illinois, ready these many years gone, stand like a solid wall of support for improved equipment and service. Look out for men and women who are in earnest! They achieve! Sooner or later the few who asperse the motives of the Board of Charities will praise them; those who belittle their intelligence will commend it. The whole movement is the old, old story of "history repeating itself"—of force applied in a just cause, opposition, success!

ACORN AND THE OAK.

The public charity service of our state can be likened to a giant oak. Oak trees grow slowly from acorns. Let me discuss only that gnarled branch of our service which deals with the insane. Before the early Greeks and Egyptians began giving water treatment to the insane and before Jesus began casting out devils, insane persons, generally speaking, were driven out of their homes, driven out by their kin, into the streets. There they were pelted with stones and sticks hurled by the mob. They fled from the home village into the country. Here they dwelt in caves and hollow trees, living like wild animals, "possessed of devils" the people believed. During the middle ages, when the scientific methods of the Egyptians and Greaks were forgotten, horrible brutalities, even death itself, were visited upon the insane. Gradually these unfortunate creatures were gathered in prisons. Convict guards beat them with whips

and clubs when they became noisy and violent. Then the insane were collected in abandoned monasteries. Priests by exorcism tried to expel the evil spirits that were supposed to cause violent and destructive insanity. Gradually the insane were given the rudiments of hospital treatment, but chains and horrible beatings still were employed, sometimes for the amusement of spectators. Finally Pinel in France, Tuke in England, Jacobi in Germany, and Rush in America began the pioneer work that has resulted in hospital care for the insane as against the custodial plan. At last the acorn had sprouted again, as it did centuries before, and began to crowd and jostle its way through the earth of ignorance and brutality toward the sunlight of skilled, humane, curative care. In this service were two famous women—Elizabeth Frye abroad and Dorothy Dix in America and abroad. They not merely worked for a satisfactory medical administration, but for nursing service on the ground that insane persons are not mad animals, to be chained and beaten, but are physically sick of a disease which in the early stages of many of its forms is curable.

DOROTHY DIX IN MORGAN COUNTY.

When Dorothy Dix, in the course of her inspections of almshouses and family care of the insane, reached Illinois, she found conditions that were horrible indeed. In her memorial to the Illinois General Assembly in 1847 she cited instances. Speaking of one she said:

> There is at this time in Morgan County, a man who has been furiously mad, most of the time, for many years. Since he became insane, he has been supported at large expense by the county. His sister and brother-in-law have charge of him. A county officer writes to me concerning this poor creature, as follows: "Fanning is in a most wretched condition, being kept more like a wild beast than a human being." I have, together with several citizens of Jacksonville, visited this maniac. Those who are paid by the county for taking charge of him seemed to me to err through incapacity and entire ignorance of how to control him, rather than through willful neglect and inhumanity. His sister said to me: "He is a sight of trouble, and cost a dreadful deal—but we had rather take care of him than leave him to strangers, because we are kinder, and treat him better than they would." Now for the comfort, the situation, the treatment of this unoffending man, who, before the accident which induced insanity, was characterized, as is testified by those who knew him, for intelligence, industry, and correct habits.
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> It was an intensely hot day last summer when I visited Fanning. He was confined in a roof pen, which enclosed an area of about eight feet by eight—probably a few inches over. The interstices between the unhewn logs freely admitted the sorching rays of the sun then; as they now afford admission to the frequent rains, the driving snow, and the pinching frost. He was without bed and without clothing; his food, of the coarsest kind, was passed through a space between the logs; "no better," said a neighbor, "than the hogs are fed."
>
> Some sort of coarse bed-clothing and garments at times were supplied, but usually not. His feet had been frozen, and had perished; upon the shapeless stumps, he could, aided by some motion of his shoulders, raise his body partially against the side of the pen. This wretched place was cleaned "once in a week or fortnight" in mild weather; not so in the wet, cold, wintry season. I was told that when the pen was opened for this purpose, the help of neighbors was requisite. "We have men called, and they go in and tie him strongly with ropes, and get him out on the ground, and then they clean the place, and him, by

throwing over pails of water." Of course no fire is here introduced in cold winter weather; but a singular expedient has been adopted, as horrible as it is singular; beneath the pen is excavated a pit, about six feet deep and six on either side. This dreary, ghastly place is entered through a trap door, neither light, heat, nor ventilation there; but there is to be found a pining, desolate, suffering maniac, whose piteous groans, and frantic cries, would move to pity the hardest heart.

Gentlemen, as you read this terrible narrative, and if you choose may visit the miserable subject of it, place yourselves for a few dreadful moments in his situation; realize, if you can, some portion, it needs will be a small part, of his sufferings; consider that these are spread over years gone by, and may drag through years to come, if no hospital unfolds its portals to receive and give relief for such deep distress. The Saviour, whose disciples we profess to be, left one simple, infallible rule, as a direction of the acts of man to his fellow man, viz.: "As ye would that men should do to you, do ye even so to them." I have laid before you one case, yet not revealing half its horrors; it varies but very little from many I could adduce; the list of which other persons can extend both here and abroad. But one effective remedy for these woes is presented; it can only be found in a well established, skillfully conducted hospital.

As the result of Dorothy Dix's appeal, bristling with real horrors, this noble institution in Jacksonville, the Central Hospital for the Insane, was established. You see the public charity oak was taking firm root in Illinois.

BIRTH OF THE STATE BOARD OF CHARITIES.

From 1840 to 1870 the Central Hospital for the Insane was the only state institution devoted to the care of that unfortunate class. In 1869 the second step in working out the problem of state care was taken. This was the creation of the Board of State Commissioners of Public Charities. Prior to the creation of this board state charitable institutions, for there were institutions for the care of others than the insane, worked separately. There was no endeavor to co-ordinate their energies or supervise their service by a central body. The first Board of Charities in its first report to the Governor in December, 1870, stated its objects briefly as follows: "In a word, they (the board members) have two objects to accomplish by their action, namely: to insure to the dependent and suffering a just measure of relief, and to guard the public at large from extravagant demands in the name of charity. Their function is to give simplicity, unity and increased efficiency to the system of state aid; to secure the largest results at the least relative cost; to diminish, as far as it is in the power of the government to diminish, the sum of suffering and of crime within the limits of the state."

Experience in business had shown the necessity of supervision over department work, as for instance periodical audits and personal surveillance. The same necessity existed regarding institutions broadly classed as charitable. The Board of Charities is designed to perform such service. The board is the accredited continuous representative of the Governor and of the General Assembly, which meets once in two years. This board is designed to be the connecting link between the public and its state representatives, the friend and candid advisor of both. It serves to protect a state administration or an institution against unjust assaults.

Yet it must make sure that administrations and institutions are faithfully, honestly and intelligently performing the duties entrusted to them by the people. The board has unlimited power of inspection and investigation and recommendation, but practically no administrative power. Its strength is moral strength.

THE PRESENT STATE BOARD OF CHARITIES.

Successive Boards of Charities had served the state, meeting the various epochs of advancement, when Charles S. Deneen was elected Governor. He recognized popular unrest regarding the state charitable institutions. Progressive men and women felt that there was need of a careful study of the existing conditions and system with a view to such changes as might be found necessary. To advise him in carrying out this vast undertaking Governor Deneen appointed a Board of Charities composed Dr. Frank Billings and Dr. Emil G. Hirsch of Chicago, Miss Julia C. Lathrop of Rockford, Dr. John T. McAnally of Carbondale. and Mrs. Clara P. Bourland of Peoria. Each was qualified with expert knowledge for some part of the work at hand. All appointments were made without regard to political considerations. The board decided:

1. Not to turn ghouls and dig into the graves of the past, with the hope of airing "scandals" and turning up "horrors," but to build on the basis as found to exist. Its policy was and is constructive, not destructive.

2. To make a study of medical and nursing administration, especially in the insane group of institutions, and devise an efficient system, if one were needed.

3. To make or cause to be made an expert survey of buildings and mechanical equipment and, if conditons demanded, to devise plans looking to the safety and well being of patients and the economical operation of institutions.

4. To take up business administration after matters of more immediate concern to patients had been given attention.

Institution people are familiar with what the Board of Charities found, what it tried to persuade the Legislature to do, and how the republican majority in the General Assembly split into factions, and conducted a most vigorous fight among themselves over the unsatisfactory conditions frankly stated by the Board of Charities. This was the active beginning of the epoch of advancement. The inevitable opposition to progress, of which I spoke a moment ago, developed. The Board of Charities became the center of the storm. It was ignored first. Then it was deprived of money required to do the work assigned to it in the emergency of the new epoch. It was the old story of being ordered to make bricks without straw. While the friends of the board forced the appropriation of $1,500,000 extra money for the institutions, the amount allowed fell $1,000,000 short of what experts declared was necessary to make our institutions safe and start them satisfactorily on the road to complete physical rehabilitation and complete state care of the insane, for which the Legislature gave legal authority. Then came the legislative investigation, which found many wonderful false things, which found what the Board of Charities had told the Legislature about the institutions was true, which found the money appropriated insufficient but being expended wisely, under the existing system, to improve conditions, and

which made wholesale condemnation and gave no credit for the great work already accomplished, in spite of legislative handicaps. But let all that pass! The work of the Board of Charities gives it answer. In my opinion, the real value of the house committee's inquiry is that it has awakened public interest to the studious, inquiring point, where our campaign of education and persuasion will reap its final reward.

NURSING AND ATTENDANCE OF THE INSANE.

Now I come to that part of my address which is of most personal interest to you as nurses and attendants. I shall pass over what has been done in medical administration and physical rehabilitation, new buildings, and the like. Scientific nursing naturally followed scientific medicine and surgery. But the insane, until twenty-five years ago, were sadly, awfully neglected by science, save for a few exceptions. The failure to realize generally that insanity is an illness due to physical causes, has left countless thousands of hopeful cases tugging at chains and other restraints till death relieved their suffering. Can you realize that Utica cribs were in use in Illinois two short years ago? Can you realize that human beings, wretched beyond description, tried to gnaw out of these reclining cages and left the marks of their teeth?

Elizabeth Frye protested successfully to the courts of Europe against the brutal treatment of the insane, but many years elapsed before scientific, curative treatment was employed. Dorothy Dix, in America, realized and declared, more than sixty years ago, that insanity not only is a disease, but is not a "hopeless and incurable disease;" and is "subject to successful physical treatment, as surely as a fever, or other common bodily disease." She helped establish the hospital system of care of the insane, but her pioneer work had to be done again years later. That you may realize the tremendous importance of properly nursing mental and nervous cases I desire to cite, on the authority of Dr. Carlos F. McDonald, former president of the New York State Commission in Lunacy, "that insanity is a disease which invades all classes of society;" is "one from which no one can claim exemption," and "that it involves to its victim, to his immediate friends, and to the community, a wider range of interests than any other disease."

The mental and nervous cases are sick cases while in the acute stage, from a few hours to several years. Such patients are sick because their nervous systems are temporarily, or permanently, diseased. The other organs in the bodies of such patients are disordered, in some cases prior to and leading to insanity and in other cases as a result of the mental or nervous disease. The danger of intercurrent infections and diseases and injuries is greater among mental and nervous cases than among normal people. Because of the mental impairment of the patient, recognition of the existence of such intercurrent disease or injury is more difficult and requires more than ordinary knowledge and training. Therefore, even the chronic class of patients requires scientific supervision. Well, as insanity is a disease, arising from physical causes and requiring physical remedies in modern hospitals, it follows that this monster also requires

modern, scientific nursing. As women are natural nurses, trained women should supervise the nursing of mental and nervous cases, including the excitable, violent types. Insofar as their physical strength goes, they should perform the actual service.

BOARD OF CHARITIES MODERNIZES NURSING.

The Illinois State Board of Charities, realizing that nurses must understand that the excitement, violence, suicidal and homicidal tendencies, and filthy habits of various classes of insanity are merely the symptoms of a disease, requiring gentle treatment, provided in that branch of its program for modernizing the entire public charity service of the state, for the education of nurses as part of the efficient medical administration in hospitals for the insane, just as it provided for the modern education of physicians in the Psychopathic Institute. It also favored the woman as against the man, especially in nursing the acute insane and the physically sick insane.

Two years ago there were training schools for nurses in three of the eight institutions in the insane group, including the Asylum for Feeble-Minded Children. These schools were located at Jacksonville, Kankakee and Anna. The first step, therefore, toward modern nursing and attendance was the establishment of efficient training schools in hospitals not having them and in extending the service of existing training schools where needed. This was agreed to on the specific basis known to you. It was also determined that a uniform plan of organization was essential to the uniform curriculum, and the following points of such uniform organization were approved; not merely by the Governor and the Board of Charities, but by the institution superintendents, without whose cooperation we were powerless:

1. A woman superintendent of nurses in charge of all the nursing and attendance service, who shall herself be a graduate nurse; with preliminary experience in nursing mental cases, if practicable.

2. The employment of a group of graduate nurses from general hospitals in charge of the attendants and nurses-in-training.

3. Nurses-in-training and attendants to be under direct charge of the graduate nurses.

4. Cooperation with general hospitals whereby nurses in-training, obtained at no greater cost than attendants, shall be given courses in nursing mental diseases.

5. Organization, as rapidly as possible, of general hospitals inside hospitals for the insane.

6. Clear differentiation between the nurses and the attendants.

WILL PROVIDE SYMMETRICAL NURSES.

This scheme has been carried out so far as practicable and we hope and expect to adjust points of imperfection so as to establish a smoothly working mechanism and to afford nurses a symmetrical, well-balanced training, so that they will understand surgical nursing, the nursing of obstetrical cases, the nursing of sick children, the nursing of contagious cases, general hospital medical nursing, and the nursing of mental and nervous cases in public hospitals, in private institutions, and in homes.

I think I am safe in assuring you that the training offered not merely will make symmetrical nurses, but will give satisfactory ultimate reward in money; and that is something which the necessity of bread and butter and other creature comforts makes us all consider in our life career, whatever it chances to be.

RECIPROCITY WITH GENERAL HOSPITALS.

Interchangeable training between hospitals for the insane and general hospitals will prove of greatest benefit to those of you who will make nursing your life work. The idea of this reciprocity, as already stated, is to train nurses who have been educated in insanity in general nursing, and those who understand general nursing, in the nursing of mental cases. In an endeavor to start reciprocity the Central Hospital for the Insane made an arrangement with the Passavant Hospital here in Jacksonville, for reciprocity, but the nurses did not take the insane training. No doubt this plan will be successful next season.

The Northern Hospital for the Insane, at Elgin, has a one-sided reciprocity established only with the Presbyterian Hospital Training School of Chicago, from which Elgin has had seven nurses and an equivalent number is on the list waiting to complete a certain amount of training at that hospital. An agreement has been made to receive one nurse from the Marion Sims Hospital of Chicago, one nurse from the Blessing Hospital of Quincy, and a list of nurses from the Hahnemann Hospital of Chicago is being prepared. No one as yet has been sent from Elgin to any of the general hospitals, although several have left of their own accord to take training in a general hospital.

The Southern Hospital for the Insane at Anna has two reciprocity nurses from St. Louis. The General Hospital for the Insane at Peoria. has not been successful with Proctor Hospital at Peoria. Kankakee has not yet attempted reciprocity. Watertown expects to establish reciprocity next year. Dunning finds a civil service impediment to reciprocity.

Superintendents of training schools in general hospitals, almost without exception, have expressed a desire to place mental nursing on their lists of studies as soon as practicable and to fully co-operate with state hospitals for the insane. As stated in the foregoing, we expect in due course to have the reciprocity system working thoroughly and satisfactorily to the great benefit, we believe, of nurses and to the incalculable benefit of incipient and acute cases of insanity, and, therefore, to the public at large.

SUMMER SCHOOL IN SOCIAL SCIENCE.*

A summer school in social science is being arranged on the initiative of Miss Julia C. Lathrop, with the cordial support of Governor Deneen and the Board of Charities, to give attendants from our hospitals for

*Since this paper was read the summer school completed a successful season. Twenty-four pupils, representing institutions in Illinois, New York, Indiana, Nebraska and New Jersey attended.—EDITOR ILLINOIS MEDICAL JOURNAL.

the insane and feeble-minded the benefit of a summer course, this summer in Chicago, at the Chicago Institute of Social Science. The Institute, desiring to assist in the improvement of the state institutions now going on, offers to remit fees to a selected number of attendants from each institution. The Institute expects this summer to be able to receive three from each institution, preferably those who have had attendants' training for the present year under the new system and who shall be selected by the superintendent as persons of special promise. The course will consist of lectures by physicians and educators, of practice work in various forms of handicraft, occupation and amusement and of excursions and visits to places of interest in Chicago and its environments. The work will be in charge of the best people who can be obtained and the course will be directed first toward making the students feel that their work in an institution for the insane is essentially educational and dignified, and second towards giving them new methods of employment, entertainment and instruction for patients.

The occupations will be in charge of Mr. Edward F. Worst, head of the department of industrial arts in the Chicago Normal College. No one in the United States is better equipped for such work than Mr. Worst. In addition to thorough training and wide experience in this country, he has made repeated journeys abroad in order to take courses in Sweden and Germany and to observe the best foreign methods of teaching by handicraft.

The plays and games will be in charge of Miss Mary Laura Sheldon, associate principal of the Chicago Froebel Association. Miss Sheldon was a graduate student at Naas, Sweden, and has had a long and most successful experience in teaching students and teachers. Mr. Worst and Miss Sheldon have given careful attention to the selection of such occupations and games as shall be practicable under the conditions of life in the average institution.

The general supervision of the class will be in direct charge of Miss Helen Burling of Hull House, Chicago. Students will be expected to attend all of the sessions and exercises and to take whatever part may be assigned in the work of the class room. Students will be given credit as their work justifies and reports of the work done by the attendants sent from the various institutions will be made to their respective superintendents. The classes will be held daily, except Saturday and Sunday, in the lecture rooms of the School of Civics and Philanthropy at 174 East Adams Street. The classes in occupation will be from 10 to 12 daily. Three mornings a week there will be lectures at 9 a. m. Two afternoons a week, alternating with the lecture days, there will be classes in games and amusements. There will be at least one excursion or visit weekly. Saturdays and Sundays will be entirely free. Boarding places for attendants from the Illinois institutions have been secured at a special rate of $3.25 weekly. It is understood that attendants will be detailed to this institution just as physicians are to the State Psychopathic Institute, and that they can be allowed their salary and the usual $15 a month maintenance.

Dr. A. W. Ferris, president of the New York State Commission in Lunacy; Dr. Owen Copp, executive officer of the Massachusetts Board of Insanity, and Dr. Adolf Meyer, director of the New York State Pathological Institute, commend this Illinois plan. In addition to Mr. Worst and Miss Sheldon, others engaged for lectures this summer are: W. B. Moulton, Dr. Eugen Cohn, E. P. Bicknell, Mrs. Ella F. Young, Mrs. Charles Henrotin, Professor James B. Angell, Dr. Alice Hamilton, Miss Jane Addams, Dr. V. H. Podstata, William C. Graves, Professor Graham Taylor and Dr. Frank Billings.

WOMEN SUPERIOR TO MEN IN MENTAL CASES.

Now a word about women nurses in our hospitals for the insane. Already we have women who are superintendents of nurses and attendants. We are trying what some consider the experiment of female nurses in charge of disturbed male wards on the theory—on the belief—that women are better nurses than men. We have to-day 68 women in charge of male insane patients. Eight of these women are in charge of acute, disturbed and physically sick insane men. Some of our superintendents assert women have failed in this difficult and tactful service. Others praise them. I believe, however, that women are superior to men, on male wards, because they are better housekeepers, because they go more thoroughly into the little items of service, because they are not as rough as men, because they are patient, because they are more attentive to the patients, because some excitable male insane patients will receive food and medicine from women nurses when they would fly into a passion and resent the approach of a male nurse, resent it with a ferocious attack; and because many insane men retain their respect for women and behave themselves in their presence, use better language and are more obedient.

WOMAN THE NATURAL NURSE.

One needs only to recall the memories of his childhood aches and pains and of his mother's gentle ministrations to realize women are natural nurses. History abounds in praises of women in this gentle service. There was Deborah, the nurse of Rebecca, who mingled her professional duties with song and prophesy. Both medicine and surgery were among the recognized duties of women among the early Scandinavian and Germanic races. During the crusades the women nursed sick and wounded knights. In the twelfth century Hildegarde established a training school for women nurses. Henry VIII. of England established a staff of women nurses to visit the indigent sick of London. The church had its noble women nurses. "The little German Frau of the Rhine" gave Florence Nightingale the training as a nurse that perfected her for glorious service in the Crimean War. Elizabeth Frye, the Quakeress; then our own noble Dorothy Dix performed grand service, getting into the neglected field of medical and nursing service for the insane. After them have come a countless throng of splendid women, and the Red

Cross Society, whose service to humanity is too great for any pen and inkhorn and paper to express, no matter what inspired man or woman uses them.

BOARD OF CHARITIES RECOGNIZES WOMEN.

The Illinois Board of Charities has recognized the superior fitness of women in insane cases. The number of women nurses and attendants in the Illinois State public insane service in 1905 was 358, in 1907, 439, or an increase of 81, or 22 per cent. increase; in 1908, 524, an increase of 166, or 46 per cent. increase over 1905. All chief nurses, or superintendents of nurses, now are women. In 1905 there was only one woman a chief nurse, an increase of 500 per cent. for 1908. In 1905 there were four women graduate nurses; now, in 1908, there are ten, an increase of 150 per cent. The total nursing and attendance service in 1905 consisted of 358 women and 338 men, a total of 796. In 1908 there are in the same service 524 women and 377 men, a total of 901. The men have increased 11 per cent. and the women 46 per cent. These figures in so far as they concern men, include the Asylum for Insane Criminals, where as yet there are no women nurses.

THE VALUE OF KINDNESS.

No doubt your instructors have gone into the psychological phase of the care of the insane, not in blocks and masses, but as individuals. But I want, in closing, to emphasize this efficient method. I know full well the severe trials your patience has with violent, excitable, destructive and filthy insane persons, but, always remembering that discipline is necessary, kindness is the best way. I could cite many instances to prove this. A celebrated superintendent, Dr. Richard Dewey, who was forced out of the Illinois service some years back by politics of the bad sort, wrote a book of rules for employes of his hospital for the insane that form a classic in such literature. I wish I had time to read his introduction. But I shall read only one paragraph. After quoting from St. Matthew, chapter 25, verses 32 to 40, inclusive, the author writes: "The above words, taken from the account of the 'Last Judgment,' well express the work which falls to the lot of those employed in a Hospital for the Insane, for within its walls the hungry are to be fed, the naked to be clothed, strangers are to be received and welcomed, and those who are sick and in prison are to be visited. And this work has need of all the kindness and gentleness and unselfishness of which we are capable."

Every nurse, every attendant, every keeper in every hospital for the insane should have an illuminated copy of that quotation framed and hung upon his wall. He should read it every day. He should remember it all through every day. He should follow its teachings every day.

CONCLUSION.

I have tried to tell you some of the stages in the growth of public charity from an acorn into an oak. In so far as I am able to describe this growth, you have the truth, winnowed from the blinding chaff of

politics. Oak trees do not grow quickly by the waving of a magician's wand. Those who are heart and soul in the work of public charity administration would sink into profound discouragement, because of this slow growth, if they could not look back through a perspective of centuries from the oak of to-day to the acorn from which it sprung. I wonder if the critics who have caused storm winds to rage through the branches of our Illinois Public Charity Oak of late realize, I wonder if they even know, that practically all the progress in America in the field now called charities has been made during the last 100 years, most of it during the last 50 years, a mere atom of time as time goes. In America at the opening of the nineteenth century, to take your branch of the service, there were only four "insane asylums." There were, in 1903, 226 public institutions, a considerable number of them curative hospitals; and 102 private hospitals for the insane. Three hundred and twenty-eight institutions as against four 100 years ago! Viewed in such perspective, public charity devotees have every reason to be proud of what has been accomplished, to cry out in a louder and louder voice for the united support of all good people and to press on to the goal of a modern service and equipment which is almost within our reach to-day.

I wish you, the members of the graduating class of 1908 of the Training School of the Illinois Central Hospital for the insane, God-speed in your service of mercy and hope!

Dr. Carriel, I thank you for the honor of asking me to address your nurses and attendants on this hopeful and inspiring occasion.

FOUR HUNDRED AND SIX CASES OF ALCOHOLISM, CONSECUTIVE INDIVIDUAL OBSERVATIONS.

A CLINICAL STUDY ACCOMPANIED BY COMPARATIVE STATISTICS.*

(Preliminary Report.)

J. F. HULTGEN, M.D.

CHICAGO.

A.—The material for this report is derived as follows: 1. One hundred and fifty cases of alcoholism, observed in 1902, when I was physician in charge of the Iowa State Hospital for Inebriates at Mt. Pleasant. 2. Two hundred and fifty-six cases of alcoholism in my private practice, observed and followed up from October, 1904, to May, 1908. These cases form the nucleus of the present article. 3. Fifty-two cases from the Cook County Hospital assigned to me as interne in 1900-1902. 4. Five hundred and sixty cases of delirium tremens collected at the Cook County Hospital registrar's office from March, 1897, to June, 1900. Some valuable data has been obtained from this material. 5. Two hundred and ten cases of alcoholic cirrhosis, also collected at the same hospital. 6. Three hundred and twelve cases from the first report of the Iowa State Hospital for Inebriates, now at Knoxville, Iowa. 7. From various

* Read at the Fifty-eighth Annual Session of the Illinois State Medical Society, May 19-21, 1908.

sources, in the literature, text-books, etc., as indicated in the bibliographic appendix, and less fully on the charts which I am exhibiting here: You see that I began to study and collect these cases since the spring of 1902, and continued this line of investigation up to the present date.

B. *Classification of Drinkers.*—You notice that I am not trying to classify the various forms of alcoholism. It would only obscure our perspective. In fact the cumbersome terminology of alcoholic psychoses has retarded nationally the study of alcoholism all these years. Let us remember that although alcohol is a food when taken in certain quantities, and can be substituted isodynamically for other food elements, it is nevertheless a narcotic poison when taken in such amounts and as frequently as we are accustomed to see amongst ourselves and amongst the laity. Let the physiologists disagree for awhile. In the meantime we as clinicians watch the somatic and psychic effects of alcohol and mark down our data. We are assisting at a human experiment, an auto-experiment by the patient himself, which with remarkable scientific precision designates in due time, to a certain degree, and in certain tissues such changes as enable us to make a diagnosis of alcoholism. I have become convinced in the course of my investigations that excessive drinking produces no one pathologic change at random, but always in conformity to certain rules, a few of which are known, others can be projected, and again others that will be clear in the future with our better understanding of psychiatry. I am not concerned with drinking as with the drinkers, and I therefore classify them as follows:

1. Insane patients, who drink; confirmed epileptics, with senile dementia, with hereditary psychopathy, general paretics, in certain stages of dementia præcox, or during psychosis arising from intoxication other than alcoholism. 2. Dipsomaniacs, impulsive, distinctly periodic, with intervals of complete sobriety, full consciousness, and but few somatic symptoms. They are easily differentiated from the rest; they drink for intoxication, not for the intoxicant. Periodic annihilation of will power, not of intellect upon an hereditary taint is the basis here. Dipsomaniac is perfectly compatible with genius and effectiveness in public life. 3. Proto-dipsomaniacs: Such patients as possess already the soil of impulsiveness, and who, upon sufficient mental or somatic traumatism, may become full-fledged dipsomaniacs. The segregation of this class of patients is not difficult; various forms of melancholia, of mania, confusion, peculiar forms of delirium, of amnesia especially, and delusions of a special color, perversions, etc., are observed here. They form a fair percentage of all drinkers. 4. The so-called normal drinker, who indulges from force of habit, of sociability, or custom. Very often he expects reasonably or unreasonably certain advantages such as gain in strength, or recuperation, or financial profits. The somatic symptoms overshadow here all others. He is the reformable plastic drinker who can become temperate if he wants to, although he does not do so as a rule. Death in such cases is often due to drinking only or mostly. The so-called normal drinker forms about 40 per cent. of all alcoholics, but this

varies greatly with the nationality and race. 6. Beginning of the morbidity due to alcoholism: (a) Psychic morbidity may, of course, begin with a single excessive dose of alcohol. Amnesias, hallucinations, delusions, and obsessions may burst forth after a few excessive doses. The onset, intensity, and form of this morbidity varies with the heredity, kind of intoxicant, and quantity taken. As a rule it takes a number of years to produce certain psychopathic changes. (b) The somatic changes of alcoholism begin after an average time of eight to ten years. A short study of this age chart will show it plainly.

Etiology of Alcoholism.—This is of course a presumptive title, but we will use it here for the purpose of study. The real cause for drinking lies deeply imbedded in human nature. It is expressed by an indefinable desire for euphoria, a dread of sinister events, doubt and hesitancy before a serious task of life. It is so easy to condemn drinking, and especially the drinker. Some of us would crucify the liquor traffickers. And yet we all are looking for oblivion, for poppy, for a physical or a psychic narcotic; yes, we all would throw a veil over the past, would gild our present, and propitiate the future. The real causes, then, of excessive drinking are beyond our grasp, and it behooves us to consider only the indirect causes, such as age, nationality, occupation, sex, religion, etc.

1. From the age at entrance upon treatment we see that the heaviest decades are the fourth and the fifth, with 62.54 per cent. of all cases. It is evident from the tables that the patients in general present a greater morbidity than any other two diseases together. Re-admissions are not counted. Previous illness attributable to alcoholism was present in only a fair sized minority. 2. A study of 521 cases in regard to the time of life when their excesses began is very interesting indeed. The two heaviest combined decades here are the third and fourth, with 75.6 per cent. of all cases. The danger decade for drinking is the third, that is, the first half of it, with 55.3 per cent. of all cases starting their drinking at that phase of life. The above two curves illustrate the mortality of the rise and decline of both. The curve of the first curve is in the fourth decade, and that of the second in the third decade. This means to me that the morbidity from alcoholic intoxication begins to manifest itself within eight to ten years after the beginning of excesses, that is, it takes about eight to ten years of continual drinking of alcoholic liquors to poison the average person of average strength, of average heredity, and of average morality of drinking. 3. Only 44.5 per cent. of 2,023 cases are married; 55.5 per cent. of them being single or widowers, or separated. The bachelor is too well represented by 40 per cent., and he illustrates the value of home life in the restraint it imposes upon a willing man. Yet no farreaching conclusion can be based upon these civil state statistics, for they vary a great deal with the source that they are taken from. 4. The nationality alcoholics present a striking lesson for everybody, and particularly for the native white. The Yankee leads in all manners of drinking, even in the impulsive variety of delirium tremens, and who would say so? Also in the production of hepatic cirrhosis. The fact

that in my practice 185 of 256 drinkers are Germans is due to the simple fact that I am working in a German section of Chicago. It is in keeping with Irish nationality that they make a large contingent among 560 delirium tremens cases. I believe, moreover, that Americans, born of American parents, constitute about 40 to 45 per cent. of all drinkers. Thus, in 137 U. S. drinkers which I studied in Mt. Pleasant, Iowa, 104, or 76 per cent., have American born parents. Further comments are idle, for the facts can take care of themselves. 5. Female drinkers shed little glory upon their sex, but we are concerned more with the truth than with sentiment. A comparison of my own tables with those of German, French and Italian authors shows striking similarity. The fact is that about 10 per cent. of 32,944 drinkers are women, and my opinion is that this percentage is rising already at the present time. 6. The various occupations of drinkers, in my own statistics, throw little light upon the relation between work and the genesis of drinking. Unskilled laborers are 33.7 per cent., as compared with skilled laborers, who show in the table with 31.27 per cent. The only safe statement to be made here is that as a rule the ignorance of the man decides more often than the kind of occupation.

TABLE 1.—Age of Alcoholics at First Consultation or Upon Admission.

	Decade.							
	2d.	3d.	4th.	5th.	6th.	7th.	8th.	9th.
Private practice, 256 cases.....	1	44	80	70	45	13	4	..
Percentage	0.3	17.0	30.9	27.4	17.5	5.3	1.5	
Mt. Pleasant, 150 cases.....	2	32	43	35	29	6	2	1
Percentage	1.3	21.3	28.7	23.3	19.4	4.0	1.3	0.7
Delirium tremens, 560 cases....	3	81	231	167	56	14	5	1
Percentage	0.3	14.5	41.5	30.0	10.0	2.05	0.9	0.2
Alcoholic cirrhosis	0	23	69	65	42	10	1	..
Percentage		11.0	32.86	31.2	20.0	4.71	0.3	
Knoxville, 310 cases.....	3	44	87	85	57	15	17	2
Percentage	0.96	14.17	28.1	27.47	18.36	4.8	5.5	0.64
Average by decade.....	0.5	15.0	34.0	28.5	15.4	4.6	1.8	0.2

TABLE 2.—Age at Which Alcoholics Began Their Excesses, 521 Cases.

	Second decade.	Third decade.	Fourth decade.	Fifth decade.	Sixth decade.	Seventh. decade.
Private Practice, 256 cases.....	45	190	21	0	0	0
Percentage	17.3	74.2	8.5			
Mt. Pleasant, 150 cases.....	32	58	41	12	6	1
Percentage	21.5	36.8	27.5	8.0	4.0	0.3
T. D. Crothers, 115 cases.....	3	39	43	21	9	..
Percentage	2.6	33.9	37.4	19.3	6.9	
Percentage per decade.....	15.3	55.3	20.3	6.3	2.9	0.2

TABLE 3.—Civil State of Drinkers (Including 2,023 Cases).

	Private Practice, 242 cases.	Mt. Pleasant, 150 cases.	Knoxville, 310 cases.	Delir. Tremens, 560 cases.	Alcoh. Cirrhosis, 210 cases.	Med. Ward, Cook County Hosp., 53 cases.	T. D. Crothers, 115 cases.	J. E. Esher, 383 cases.	Total, 2,023 cases
Married	179	72	134	187	97	18	41	190	918
Percentage....	73.9	45.8	43.2	33.3	46.1	33.3	35.6	49.0	44.5
Single	45	45	124	320	78	27	51	120	810
Percentage.....	18.6	29.7	40.0	57.1	37.2	51.2	44.34	33.0	40.0
Widow or widower..	13	18	17	35	26	8	8	28	153
Percentage.....	5.35	7.5	5.5	6.2	12.4	14.54	6.9	7.0	8.0
Divorced or separated	5	15	35	18	9	..	15	45	142
Percentage.....	2.15	6.0	11.3	3.4	4.3		13.2	11.0	7.5

TABLE 4.—NATIONALITY OF DRINKERS, 1,525 CASES REVIEWED.

	Private Practice. 242 cases.	Knoxville, 312 cases.	Mt. Pleasant, 150 cases.	Cook Co. Hosp. 53 cases.	Delir. Tremens, 560 cases.	Cirrhosis, 210 cases.	Total, 1525 cases.	Total Percentage.
United States	26	249	137	23	262	96	780	51.35
Germans	185	14	3	6	40	39	287	18.65
Irish	27	12	1	8	157	22	227	14.68
English (Scotch, English, Canada)	4	6	2	9	55	29	105	6.8
Slavs (Poles, Bohemians)	2	0	1	2	9	13	27	1.7
Scandinavians (Swedes, Norwegians, Danes	7	22	4	3	29	5	78	5.12
Dutch	0	1	0	0	1	0	2	0.12
French	4	0	2	2	4	3	15	0.96
Italians	0	0	0	0	3	3	6	0.42
Africans	0	2	1	0	0	0	3	0.20

TABLE 5.—DRINKING AMONG WOMEN. GRAND TOTAL, 32,944 CASES.

1,328 CASES.	M.	W.	%	GERMAN STATISTICS, 22,103 CASES.	FRENCH STATISTICS, 5,881. CASES.	ITALIAN STATISTICS, 3,628 CASES.
a. My own 242 cases	232	10	4.1			
b. Cook Co. Hosp., med. cases, 52	41	11	21.5	a. Waldschmitt's 21,360 cases:	a. Ve'tault:	a. Legrain: 13.8 of 38,764 total admissions to 43 Italian insane asylums, 1903-1905, were alcoholics:
c. Mt. Pleasant, 150 cases	144	6	4.0	Men 19,869	Men 5,063	
d. D. T. cases, 560, Cook Co. Hosp., 1897-1901	521	39	6.9	Women 1,492	Women* 818	Men 3,398
e. Alcoh. Cirrhosis in Cook County Hosp., 210 cases.	164	46	21.8	7.0 per cent.	13.8 per cent.	Women 323
f. Ternet., 114 cases.	71	43	37.7	b. Moch: 742 cases:		9.04 per cent.
				Men 682		
				Women 55		
				7.5 per cent.		
Average %, 11.51.				Average %, 7.25	Average %, 10.85	Average %, 9.04

* Quoting from Dr. Plane, who as alienist in an insane asylum had 5,887 cases of psychopathy in his own clinic, all due to alcoholism. In the ten last years of his observations the percentage of drinking women rose from 10 per cent. to 15 per cent.)

TABLE 6.—OCCUPATIONS AND ALCOHOLISM (4,490 CASES COLLECTED IN ALL). AMERICAN STATISTICS, 1,092 CASES.

	1. Private Practice.	2. Mt. Pleasant.	3. Cook County Hospital.	Average Percentage.
Laborers	114	41	213	33.7
Butchers	30	3	6	3.56
Carpenters	26	4	21	4.68
Printers	2	..	12	1.3
Painters	12	12	19	3.8
Masons	9	4	4	7.6
Mechanics	12	25	107	13.25
Clerks	9	29	109	13.7
Liquor Traffickers	9	1	57	6.58
Bakers	3	0	17	1.9
Railroadmen	2	2	21	2.27
Farmers	2	21	0	2.18
Druggists	0	1	3	0.34
Physicians	0	3	3	0.54
Lawyers	0	3	3	0.54
Barbers	0	0	16	1.4
Merchants	2	..	6	0.72
Cigarmakers	0	0	5	0.46
Tailors	0	0	8	0.72
Housework	9	6	60	6.84
Dressmakers	0	..	9	0.86
Office girls	0	..	6	0.56
	242	150	700	

ITALIAN STATISTICS. ITALIAN DRINKERS, 3,398 CASES.

	Men, %.	Women, %.
Laborers and mechanics	53.6	13.1
Farm and kindred work	22.0	11.0
Without information	3.0	...
Soldiers	0.9	...
Students	3.1	...
Clerks	10.0	6.0
Liquor traffickers	4.9	1.9
Retired persons (reutlers)	2.7	3.9
Housework	...	57.0

DISCUSSION.

DR. J. E. WALTON, of Medora: On behalf of the Society, I wish to thank Dr. Hultgen for his classical paper on a subject which should appeal to every one of us. There is not a man in this hall who has not to face some of the problems the doctor has worked out for us. I wish to call attention to one important point, and that is, we may never see the last of these alcoholics. They came in with Noah, and we have had alcoholics ever since, and I presume we will have them all down through the ages. I believe we will have less and less of these cases to deal with in Illinois on account of the local option movement. We should follow up the statistics, and watch those points that need our closest attention, and let us do the best we can for the poor alcoholics.

DR. HULTGEN (closing the discussion): In reference to the death rate among drinkers. In my practice I have been able to keep track of 1,719 cases. Total deaths 127, or 7 per cent. This is large as compared with the United States census. Among 256 drinkers, there were 39 deaths in all, a percentage of 15.24. Taking all the deaths in my cases, which were 127 in four years, I find among them 36 who were tuberculous, a percentage of 28.8; but taking 39 deaths among alcoholics, in 17 cases there was tuberculosis, (in 3 tubercular meningitis). This means that 41 per cent. of 39 deaths among alcoholics are due to tuberculosis. I have here a report from a Paris hospital covering the years 1906-7, showing 8.6 per cent. deaths in the hospitals there as having been *due directly* to alcohol. In a sanatorium, very much like the one at Bartonville, Ill., Noeggerath shows that 10.2 per cent. of the deaths were due to *alcohol directly*. In my own cases I find that alcohol was the *direct and primary cause* of death in 5 cases, i.e., 12.7 per cent. of deaths.

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SEPTEMBER, 1908.

NOMENCLATURE OF PULMONARY TUBERCULOSIS.

We are publishing as a supplement to this issue, a classification and nomenclature of pulmonary tuberculosis, as adopted by the National Association for the Prevention of Tuberculosis.

There are many varied classifications of this disease found in our standard text-books, many of which are crude and not in conformity with the present methods of treatment. The crusade against tuberculosis has prompted the leaders to adopt a classification which can be made universally practicable. By this means much can be done to cure already existing cases, as well as the establishment of what we may term as anticipatory cures. The various tuberculosis institutes and sanatoria have adopted this classification, and most heartily recommend it to the practitioners of medicine, to whom practically all cases of tuberculosis come first.

It is of special importance that the family physician should be alive to the early manifestations of this disease, and should recognize the importance of sufficient length of time for the treatment to effect a cure. Furthermore, he should be thoroughly familiar with those stages of the disease as classified under the head of "Classification of Results." Untold harm may be unwittingly done by the failure of the physician to recognize the difference between a case which is "apparently cured" and one which is "cured."

We most heartily commend this supplement to our readers, believing that it can be used to great advantage in the detached form, by hanging it up in a conspicuous space in the office for quick and ready reference in your work in fighting tuberculosis. Illinois, officially and unofficially, has made marked progress in the crusade against tuberculosis. Much work is yet to be done, and we feel that no small part must come directly from the members of our association.

All matters of state medicine for the betterment of public health must not only have the approval, but must have the impetus that can only come from a strongly organized body of sincere and hard-working physicians.

PHYSICIANS AND POLITICS.

Activity on the part of physicians was very noticeable at the recent primary election. Rarely, if ever, have the doctors shown so much activity in Illinois politics. The reason for this activity is not far to seek. The state institutions in this state were originally established largely through the efforts of the physicians, and especially those composing the Illinois State Medical Society, and they have always been a subject of deep interest and solicitude to our profession. In the recent campaign one of the chief issues at stake was the management of the state charitable institutions, which ever since Governor Altgeld came into office have been so productive of political spoils. They involve the expenditure of nearly one-third of the appropriations made by the legislature, and naturally, in the minds of the physicians, at least, become the paramount issue in a state political campaign. This was peculiarly true of the recent primary campaign, because the work of the State Board of Charities appointed by Governor Deneen was vigorously attacked by his opponents. No body of citizens are so well acquainted with the high qualifications and honest and unselfish labors of the present State Board of Charities, and especially of its distinguished president, Dr. Frank Billings, as the physicians, who naturally resent any effort to return the institutions to the spoils system of the recent past.

While the capacity of the Board of Charities is almost entirely advisory, and it has few executive rights or administrative functions, it has been appointed for the purpose of conducting an impartial and non-partisan investigation of the conditions at the various state institutions for the purpose of making recommendations for the improvement of management, medical supervision, methods of care and treatment, buildings and equipment. The high esteem in which our present State Board of Charities is held by the physicians is shown by the unanimous vote of approval by the House of Delegates, representing over 5,000 members, at the last annual meeting in Peoria. The attitude of Governor Deneen toward the recommendations of the Board of Charities and toward the state institutions, as well as the work of the board, was approved. The majority of the state institutions are semi-medical, and require med-

ical supervision. Therefore, the ultimate solution of the questions arising in connection with them must largely be made by the medical profession, and in no campaign has this fact been made more prominent.

The literature sent out by one side contains statements from some of our well-known members, also the actions of various component medical organizations and of the state society relative to the management of state institutions. There was also recently organized a "Physicians' League of Illinois," the purpose of which we have noted in a previous editorial. A few days previous to the primary election this league sent circular letters to the physicians with recommendations for nominees for the various offices, stating that after investigation they believed these persons "to be friendly to the advancement pertaining to matters of the medical profession and medical subjects of the state." Whether this organization was for political purposes only, as it seemed to initiate those measures which had already been advocated and supported by the regular medical organizations, or whether this new league was absolutely sincere in its methods, we will not discuss. The organization of such a league, even for temporary campaign purposes, shows plainly that our great political bodies, in matters of such importance as the management of state institutions, recognize the force and strength of the support which may be given by the medical profession. The best service which our profession can do the state at the present time is to study these problems carefully, interrogate all candidates for governor and for the legislature thoroughly, and let it be known that they will only support those who stand for high standards in management, equipment and treatment and the abolishment of all forms of political spoils in our state institutions.

PREVENTIVE MEDICINE.

We venture to state that no field in medicine has been as productive of practical beneficence to mankind as the results obtained in the field of preventive medicine. Our national organization, the American Medical Association, has this year given recognition to this fact by electing to its highest office a man whose work in the department has made him known more widely than any other single individual, to all of those either directly or indirectly connected with the construction of the great Panama canal. We might go one step further and say that Colonel Gorgas, by making habitable the Isthmian zone, has made possible the building of this inter-ocean canal.

Again, the care of public health as vested in our various state, city and county health boards, gives evidence of the progress which is being made to control and finally eliminate all preventable diseases. These various boards of health, although not perfect in every detail, are being driven by the medical profession to that state of complete organization and competent administration which will result in the scientific study and prevention of infectious diseases. Already the general practitioner

is beginning to feel the effect of his own labors. Epidemics of diphtheria, scarlet fever, typhoid fever, smallpox, etc., of the broad and alarming distribution, have long since ceased. The doctor is finding himself gradually losing business, but gaining ground in the most magnificent work possible to the powers of man, the work of saving human lives, and preventing diseased conditions.

The organization of the profession has repeatedly met with defeat and discouragement at the hand of legislative bodies. They have failed to be convinced that the good which we seek is for the larger public and not for ourselves. So long have members of our legislative bodies been in that business for self gain, rather than the broad public good, that it is difficult for them to conceive of any organization with the high purpose of bettering the physical and mental conditions of human sufferers, and preventing the well from becoming sick.

This question has been discussed in medical society meetings, has been written of at length in medical journals, has been talked to the people through public lectures, but not until recently has the lay press taken cognizance of these efforts and sincerity of these purposes. We are indebted to *Collier's Weekly* and the *Ladies' Home Journal* for the initiative in the crusade against patent medicine, and so-called proprietaries. It is with pleasure that we read in a recent issue of *Collier's Weekly* an editorial comment on "What It Means," and "Expressed in Dollars," in which the editor discusses how to understand the real meaning of disease in the universe.

We feel that we can not do better than quote these editorials in full, for we believe that such writings in the lay press will give the greatest impetus and most valued co-operation to our organizations in their efforts to arouse public sentiment to such a degree that the people will demand of their legislators that they vote to appropriate sufficient sums of money to care for the sick poor, and establish competent boards of health from whom the people will demand that they shall use all best means to rid our land of the dread infectious diseases.

"WHAT IT MEANS.

"How many understand the real meaning of disease in the universe? What imagination can grasp even the direct suffering it causes, to say nothing of the indirect? How much does the decreased death rate of children mean to women in this world? The population in the future will be kept up with a fraction of the births needed in the past. Many times fewer small children will die; the length of life for adults will be still farther extended; those who live will know infinitely less suffering. The average length of life has already been increased from twenty-one and a quarter years in the sixteenth century to forty and a half in the eighteenth. The death-rate from diphtheria has been reduced from 40 or 50 per cent. to less than 10. The British in the Boer war lost from typhoid more than those killed by wounds received in battle. In the Spanish war one-fifth of the soldiers in our national encampments had typhoid, and the present situation leads experts to believe that in another

war this record would be repeated. How easy it is to avoid, however, was shown by the Japanese. General Oku, in an active campaign of seven months, had 187 cases to 100,000 men. Furthermore, the Japanese learned so much between the Chinese war and the Russian war that dysentery was about one-sixth as prevalent, malaria about one one-thousandth, and the cholera cases diminished from 7,667 cases to none. Many of us are able to remember when yellow fever raged; in 1878 in Memphis, a city of 19,500 people, there were 17,600 cases of this disease, with 6,000 deaths. General Wood said that the discovery of the method of transmission of this disease resulted in the saving of more lives each year than were lost in the Cuban war. Before Jenner's discovery, smallpox killed one-tenth of all the people on the globe and disfigured nearly twice as many. Since then it has existed only because of prejudice against vaccination. In Prussia, where vaccination is compulsory, the mortality has been reduced to one in about 300,000. In Paris, on the other hand, where vaccination is not compulsory, between 1870 and 1895 there were over 20,000 deaths. Before the discovery of Yersin's and Haffkine's serums the mortality from bubonic plague was over 90 per cent. In London alone, in 1348, 100,000 fell victims to the disease. These are a few examples which show what intelligent study means in the sum of human misery and happiness."

"EXPRESSED IN DOLLARS.

"Now put it into money, this same saving to the race through intelligent observation. Hunter has estimated the average cost of preparing a man for usefulness at $1,500. The loss of 400,000 workers, which occurs every year from diseases that are preventable, represents, therefore, an annual loss to the country of $600,000,000. On Hunter's estimate, the lowered death-rate of England in about ten years would mean a capital saved of $1,285,206,000. The epidemic of 1891-'92 cost Philadelphia an estimated loss of about $22,000,000—to railways, hotel-keepers, merchants, manufacturers—for care of sick, loss of time, and expense of burial. A policy of prevention, on the other hand, would have cost about $700,000. The discovery of the yellow-fever mosquito is supposed to save us more money in each single year than was spent upon the entire Cuban war. If we could master tuberculosis the saving in money in the United States would be $330,000,000 per year. Is it any wonder, then, that the best physicians are heart and soul in the study of prevention? Dr. N. E. Ditman, in the *Columbia Quarterly* for June, has a powerful plea for a school of sanitary science and public health. To the large body of millionaires who are regular *Collier* subscribers, that essay is sincerely recommended."

PREVENTIVE MEDICINE AND FEES.

In our last issue we printed an editorial on the "Adjustment of Fees." We gave you some of the sentiment which exists as to the disproportion between the fees obtained by surgeons and the fees obtained

by physicians, the former requiring largely technical skill and the latter requiring diagnostic ability and the responsibility, not only for the advice for surgical interference, but responsibility for the ability of the surgeon whom he calls to operate. This condition of affairs has resulted in part because of the growth of preventive medicine. The general practitioner, because of his small fees, feels that it is necessary for him to do his own surgical work that he may receive sufficient remuneration for his needs. We believe that a sharp distinction should be drawn between medicine and surgery. It is fair to conclude that the man who is skilled in surgical technic is better equipped to do surgical operations and meet the emergencies which may arise at any time during such an operation than is the man who only occasionally has the opportunity to make a major operation.

On the contrary, we are firmly of the belief that the physician who has the care and management of medical cases, who intelligently studies the action of drugs and who carefully studies the methods of treatment of diseases other than surgical, is the man to be trusted with cases which do not require surgical interference.

It has been a frequent experience of physicians that they have had great difficulty in collecting fees for medical service, where the patient had not hesitated to pay a large fee for a surgical operation which this same physician advised. The public has been rightly educated to believe that surgical operations are expensive. They have not been taught to believe that medical services are of equal importance to the patient and of equal value to the patient. It will necessitate a full cooperation on the part of surgeons and physicians in fully convincing the patients that good medical service is valuable and should be properly compensated for. The evolution of the adjustment of fees involves the very practical question of the effect upon the earnings of the general practitioner. In truth, his work must be careful, his examinations thorough, and he must give the very best to his patients, for which he should receive adequate remuneration; but, added to a very large bill for a surgical operation, we may ask what of the patient's pocketbook?

We are of the opinion that this matter merits further consideration, and we should be pleased to hear from those who are giving the subject thoughtful attention. We want both sides of the question discussed, so that good may be obtained from it. The medical profession is determined to have placed on the statute books, the proper kind of laws for the regulation and control of medical practice in the various states. It means the continuation of preventive medicine. When prophylaxis has reached its ideal consummation, the result will be a full extinction of preventable diseases and a consequent material loss to the general practitioner. Such an ideal condition cannot be hoped for in the near future, but the gains in that direction are so rapid that the financial loss has already been felt by the practitioners and should be adjusted, for nothing must stop the onward progress of preventive medicine.

ADVERTISING.

Look again at our advertising pages. We have previously written of the elimination from our pages of all advertisers whose products have not been passed by the Council on Pharmacy and Chemistry of the American Medical Association. This campaign for clean advertisements in your JOURNAL, although it entails the loss of hundreds of dollars which might be obtained, nevertheless is to the credit of the medical profession of Illinois. It is to our mutual interest to have THE JOURNAL make for all that is scientific in the practice of medicine. All, for too long a time, the nostrum venders have repeatedly filled with their advertisements the advertising pages of reputable journals. We are now in our second year of clean advertising and as rapidly as possible contracts with firms whose advertisements were objectionable were cancelled. We ask cooperation in building up the business department of your JOURNAL by giving your support to those who advertise in it. It is very little trouble to mention in your letter to the firms from whom you purchase that you saw their advertisement in the ILLINOIS MEDICAL JOURNAL. Likewise it is only fair that you should give your advertisers a fair share of your business. We cannot obtain new business unless we can assure our advertisers that it pays to take space in THE JOURNAL. It is entirely a business proposition with them, and it lies with you, the readers and likewise owners, to see that it pays to advertise in the ILLINOIS MEDICAL JOURNAL. Be fair, and when you desire to purchase any article give our advertisers the preference if they can show you that their goods are equal to or better than you can buy elsewhere. The greater the number of advertising pages the greater are the possibilities open for broadening the scope and work of THE JOURNAL. It costs considerable money to publish and print a publication such as this one, which you are obtaining at a very nominal cost. Your cooperation in the business department, as well as in all other departments, is not only solicited and desired, but indeed is one of your privileges.

EDITORIAL CORRESPONDENCE.

Heidelberg, Aug. 1, 1908.

DR. GEORGE E. BAXTER, ASSISTANT EDITOR, CHICAGO.

Dear Doctor:—My stay in Heidelberg closed to-day, and before leaving the beautiful city on the Neckar, I have thought that it might interest the readers of THE JOURNAL to hear something of medical affairs at this, one of the oldest universities on the Continent. Every summer three or more of the German universities give what are known as *Fortbildungs Kurse*—exhibition courses, I suppose, is a good translation of the term—for practitioners, lasting two or three weeks. One of these courses was given here from July 13 to August 1 and was attended by some twenty-five practitioners. The foreigners, six in number, were from Hungary, Bohemia, Honolulu and the United States. Nearly every

member of the medical faculty has had a part in the program. The course began at 7 a. m. and lasted until 7 p. m. Some of the practitioners heard some lecturer every hour of the twelve. Just how much of this concentrated extract of medical science they were able to absorb I can not say, but there certainly was an opportunity to "soak up" a great deal. The number in attendance was not large, consequently there was no complaint concerning crowding. A large proportion of those in attendance were foreigners, especially Americans, and this serves to call attention to a certain feeling toward Americans. There is a tendency to say that the university courses are for Germans only, yet I believe that any American with a sincere desire to learn, a willingness to conform to the customs of the country, and enough modesty to be polite, will be welcomed. It is unfortunate that some of our countrymen try to make "Cook's tours" through the clinics and forget all ideas of propriety in so doing. It is doubtless these "hustlers" that give us a bad reputation in foreign lands. I happened to see one of these gentlemen to-day. Professor Krehl gave his clinic with his gown over his dress suit, intending to go at once to the unveiling of the Brunsen memorial. Just as the clinic closed our hustler, speaking English, and I fear he was an American, entered the rear door, hurried forward to present his card to the professor, who very properly and truly told him he could not talk with him, as he had another engagement, and turned him and his card over to an assistant. The situation was awkward for all concerned and embarrassing for those who knew the circumstances. My chagrin was still further increased when I saw this party an hour later boarding a train for Switzerland. His stay in the hospital grounds was certainly not over fifteen minutes, but he will doubtless at home recount his wonderful investigation of the clinics.

As I attended only a few of the courses I can give only a short account of those teachers I came in contact with. Professor Czerny, with the honorary titles of privy councilor and excellence, recently retired from the chair of surgery in the university, has given six lectures on the treatment of cancers by fulguration, *x*-ray and radium. These lectures have been given in the Samaritan House, a modern hospital building erected by private donations, but an integral part of the school. Professor Czerny is devoting the evening of his life to the enormous problem of malignant diseases. Probably no character in the profession is so well equipped to undertake the solution of this riddle of the medical sphinx. Still in the enjoyment of all his faculties, he is testing all the modern methods of operation and treatment of the disease when already established. To this end he brings his forty-three years' experience as a diagnostician and operator in one of the largest clinics in the world. Besides surgical means, Professor Czerny is using *x*-ray, radium and fulguration, or the high frequency current applied in conjunction with a spray of carbonic oxid gas. He tells me he has been using the fulguration treatment since last December and is often able to accomplish as much in one fulguration of ten minutes as with *x*-ray for several weeks.

In many of the worst cases this treatment serves to make a suppurating, foul smelling growth free from odor and after a time free from pain. It is necessary to give chloroform during the fulguration and the carbon dioxid acts as refrigerant and thus the sparks are not hot, but cold. After the fulguration a 5 per cent. anesthesia salve is applied, as the wound remains very painful for a time. Atoxyl injections are made intravenously, but no report has been made of their efficiency. Pure acetone is applied to cancers of the cervix uteri with good effect. The application lasts one hour. A visit through the wards of the Samaritan House was one of sad interest. Such a collection of distressing cases is seldom to be seen. They have come in their extremity from all corners of the Continent, seeking deliverance from an impending fate. That many of them come too late is certain, and that Professor Czerny will get little credit for those he fails to cure, no matter how great the effort he makes, is a phase of human nature familiar to every practitioner of medicine. Czerny's surgical assistants are Drs. Verner, Von Eickhorn and Teller.

In addition to the staff of surgical assistants, two other departments have been established. One on Parasitology, presided over by Professor Von Vasiewlewsky, with Dr. Hirschfeld as first assistant, and another on Chemical Biology, whose chief is Professor Von Dungern, and an assistant, Dr. Cocker, said to be an American. A visit to these departments showed them to be apparently well equipped to carry on this work. A large number of animals are required, varying in size from the mouse to the horse. Experiments are being made here along the lines probably first laid down by the Pasteur Institute in Paris. They involve problems little understood by the ordinary physician. The rapid development of this side of our science is indicated by the size of what is entitled a handbook of the technic and methods of experimental immunity, edited by Drs. Kraus, of Vienna, and Levaditi, of Paris. It contains about one thousand pages. In addition to the members of the staff in the various departments, there are voluntary assistants in each, so that the number of trained men available is something near twenty. The discovery of the spirochætæ pallida as the certain cause of syphillis has led to investigations along new lines. We await with confidence the announcement of the discovery of the cause of malignant growths. When it is made we will all wonder why it was not found before.

To Professor Czerny and his assistants I wish to return here my heartiest thanks for courtesies and best wishes for the success of their efforts. May the motto of the hospital, "In Scientia Salus," be again vindicated. The other departments I will take up in another letter.

Yours respectfully,

G. N. Kreider.

Scientific Editorial

CHOLECYSTITIS.

Next to appendicitis, no disease of the abdomen has attracted so much attention during the past ten years as inflammation of the gall bladder and gall ducts, and few subjects have undergone such a complete evolution. Appended to this may be found, by way of illustration, a list of the original articles on this subject which have appeared in the ILLINOIS MEDICAL JOURNAL and the *Journal of the American Medical Association* during the last two and a half years. It is said that over one thousand articles on this subject are to be found in the Medical Literature of the past ten years. Only a few years ago the profession had a very uncertain understanding of "gallstone disease," while "catarrhal jaundice" was a term used to designate an indefinite group of symptoms covering practically all the other diseases of these tracts not covered by "gallstone disease" or "gallstone colic." The element of infection has only recently been accorded a position of importance among the etiological factors, and as the study of the relation of infection to diseases of the gall ducts progresses, it has assumed more and more importance until some observers consider it to be the cause of the gallstones as well as all the other diseases of this region. The new nomenclature of these diseases would seem to divide diseases of the gall bladder and bile tracts into two classes: First, inflammatory diseases; second, tissue degenerations.

It is quite worth while from every point of view for the general practitioner to carefully review the literature of this subject, and especially to revise his interpretation of such symptoms as "substernal pressure," "a boring sensation behind the middle or lower fourth of the sternum," "vague sensation of discomfort at the pit of the stomach," "persistent desire to belch," "pain in the region of the gall bladder or over the pyloric end of the stomach or to the left of the medium line," "chill followed by pain in these regions," "pain in the epigastrium or between the shoulder blades or under the right shoulder blade" and "vomiting followed by severe pain." These symptoms, with the absence of fever, leucocytosis or jaundice, or accompanied by "soreness in the epigastrium," "epigastrium pressure," "dyspeptic disturbances," "flying pains," "pains simulating other disorders, as of the stomach or heart," "unnatural mouth conditions," "loss of appetite" and "loss of weight," should always lead us to make a very careful physical examination which will probably confirm the clinical picture of infection of the gall bladder or bile ducts by the discovery of local tenderness in the region of the gall bladder, and bimanual examination may reveal a local swelling in the same region. Rigidity of the upper portion of the right rectus muscle may assist in arriving at a correct diagnosis in acute cases.

In chronic cases the history of such an attack or attacks of illness accompanied or followed by one or more of the above symptoms should be regarded as of very great importance. Wherever a patient has had

periodical attacks in which several of the above symptoms of disease of the stomach, heart or lower abdomen are absent, we will usually find them due to infection of the gall ducts or gall bladder. In one patient the digestive disturbances will be most prominent, another will have continuous feeling of distress in the epigastrium, while in a third, pain behind the sternum, between the shoulder blades or under the right shoulder will be most prominent, and a fourth may have continuous tenderness over the region of the gall bladder. A history of attacks presenting some of these symptoms closely following child-birth or typhoid fever, should arouse suspicion. We must remember that only about 25 per cent. of patients suffering from infection in this region will complain of digestive disturbance and a considerable number will only present symptoms of abdominal pain of an indefinite character. Not more than 25 per cent. will give a history of typical attacks of acute cholecystitis and a much smaller percentage will give a history of attacks of gallstone colic or jaundice.

The diagnosis in the great majority of cases will only be made after a careful study of the clinical symptoms presented by the patient over a considerable period of time confirmed by a physical examination. Where the symptom-complex is somewhat doubtful and the physical examination uncertain, the exclusion of disease of the stomach or other organs will enable us to arrive at a reasonably certain diagnosis.

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COUNTY AND DISTRICT SOCIETIES

ADAMS COUNTY.

The Adams County Medical Society met in the Elks' club rooms July 13, with the following doctors present: Dr. J. B. Shawgo, president, and Drs. Nickerson, Koch, Shepherd, Miller, Millen, Wessels, Heitman, Pitman, K. Shawgo, Center, Robbins, Rice, Gilliland, Kidd, Lierle, Christie, Jr., Werner, Knox, Mercer, Gabriel, Brenner, Blickman, E. Zimmerman, Hart, Ashton, Spence, Haxel and Wells. Dr. G. L. Thompson of Kellerville, was elected to membership, and Dr. J. W. Pettit of Ottawa, and Dr. J. R. Ballinger of Chicago, were elected to honorary membership. Dr. J. A. Koch made report for the committee having in charge the annual outing and excursion of the Society in August. This is usually a very successful event and is participated in by the profession of this part of the State. A large company had luncheon together at the Hotel Newcomb. In the afternoon Dr. J. R. Ballinger of Chicago, was introduced and delivered a splendid paper on "Diseases of the Stomach; Indications for Surgical Treatment." This was an admirable presentation of the subject and very instructive to all who had the pleasure of hearing Dr. Ballinger. A hearty vote of thanks was voted the speaker at the conclusion of his address. C. A. WELLS, *Sec.*

DISEASES OF THE STOMACH INDICATIONS FOR SURGICAL TREATMENT.*

J. R. BALLINGER, M.D.

CHICAGO, ILL.

In order to arrive at a proper indication for surgical treatment of the stomach, I beg to call attention to the normal function of the stomach and then trace it to the abnormal. Normal gastric juice is composed of hydrochloric acid, pepsin, mucin, inorganic salts and rennin. Hydrochloric acid, which concerns us most in this paper, varies normally in different individuals and at different times in the same individual, but it may be put at from 2 to 3 per cent. of the total fluid secretion of the stomach in twenty-four hours—which is from 10 to 20 pints. Pepsin, which has the power to act only in acid media, has the power with its combined action of hydrochloric acid to change proteid food into peptones with a few intermediary steps as: The formation of acid albumin or syntonin, then primary and secondary proteoses, and finally by further action of the ferment to peptones.

The secretion from the mucous glands lining the stomach have the function to protect the inner walls of the stomach and claimed by some to be the chief factor in preventing the stomach from self-digestion, along with viability, and the alkaline blood floating within the gastric vessels. Rennin, an enzyme, that coagulates milk and after the coagula it is separated into casein and whey. The casein in human milk is not a solid but loose flocculi. After the swallowing of an ordinary meal consisting of proteids, carbohydrates, and fats, it is immediately changed into acid chyme. This allows the ferment to act upon the peptones, the carbohydrates and fats are unchanged, the fats are liquefied by the heat of the body, and mechanically kept in mixture with the other food substances. This is the condition in the stomach as the peristaltic wave begins at the fundic end of the stomach and increases in intensity until they reach a maximum at the transverse band, which contracts so markedly as to divide the stomach into two parts, then follows the contraction of the antrum and portions

* Read before the Adams County Medical Society, July 13, 1908.

of the food are forced through the pylorus, and what food is left sets up an anti-peristaltic wave and the contraction again starts at the fundus.

In the diagnosis of stomach diseases I wish to call attention to eight questions that Herr Prof. Conheim of Berlin taught me last summer. It is his claim, and while he is a little dogmatic but positive enough to be a good teacher, that 75 per cent. of stomach diseases can be diagnosed without physical or chemical analysis. The questions are: 1. What is the age of the patient? 2. How long sick? 3. Continuously or periodically? 4. How is swallowing- 5. Pain or pressure. 6. If pain, where and when? 7. Vomiting and when? 8. Do bowels move?

Diseases to be first considered are hyperchlorhydria and gastric ulcer. I combined these because they are inseparable and it is more than possible that the persistent hypersecretion of hydrochloric acid is the most important factor in the study and treatment of ulcer, and it is invariably present in increased amount in this disease.

Hyperchlorhydria is the condition that the name suggests, an excess of hydrochloric acid in the stomach. Acid is the normal constituent of gastric juice up to .2 or .3 per cent. Above this, as indicated with decinormal sodium hydroxid, indicator is abnormal. We know that acidity is increased after eating and following emotional states, as fear, shock, etc., but the constant superacidity above 60 per cent. is abnormal and gives rise to the symptom complex of pain on pressure coming on about two hours after eating, the pain is usually of burning and distress of fullness. Sour eructations take place and the patient is nervous and restless. The bowels are irregular, moving sometimes loose, with discomfort before stool, and at other times constipated.

Gastric ulcer occurs in women in 60 per cent. of cases and usually between the ages of 20 and 30. In males in 40 per cent. and most frequently between the ages of 30 and 40. In females the condition of chlorosis predisposes to gastric ulcer as before stated because of the lessened alkalinity of the blood. (The Alkalescent theory of Conheim.) Virchow's theory of it resulting from the plugging of an artery by thrombosis or embolism is, of course, true in a certain number of cases. Gastric or peptic ulcer occurs in the stomach and duodenum as far as the papilla biliaria. This is significant to account for an ulcer by the excessive amount of acid. It occurs most commonly in the posterior wall near the pyloric region on the lesser curvature. Duodenal ulcer is not nearly so common and occurs most frequently in males. Ulcers are of two kinds, acute and chronic, or the so-called recurrent ulcer. The symptoms of ulcer are dyspepsia, which may be slight or of the most aggravated character. In a considerable proportion of cases nausea and vomiting occurs. The latter not for two or more hours after eating. The vomitus contains a large amount of hydrochloric acid. Pain is perhaps the most common and distinctive feature of ulcer. It varies greatly in character. It may be gnawing or burning, which is usually increased by taking of food. The pain may be paroxysmal, or the most intense gastralgia in which the pain is felt not only in the epigastrium, but is radiated back to the tenth or twelfth dorsal vertebra. The attacks are most frequently induced by the taking of food, but may occur at variable periods after eating.

Tenderness is a common symptom. It is most marked a little to the right of the median line just below the ensiform cartilage. Loss of weight is due to the anemia, either through the loss of blood directly or malnutrition. Hemorrhage is present in one-half of the cases. It may be slight or commonly is profuse. The vomitus usually contains bright red unaltered blood. In duodenal ulcer the blood is usually passed into the stools. Perforation occurs in about 6½ per cent. of the cases and always calls for surgical interference. Perforation occurs most frequently in acute ulcers, but may occur in chronic or so-called latent ulcers.

The symptom complex which follows gastric perforation is quite characteristic. If a gastric crisis occurs after a history such as has just been given with intense pain, collapse, retracted abdomen, rigid muscles, with pulse up to 150

or more, it is evidence that there has been a perforation of at least some of the viscera, and with the history it is reasonable to suppose the stomach. The leucocytic count is indispensable, for from a normal leucocytic count it jumps from 12,000 to 30,000 within a few hours, is an important diagnostic point. The operation should be done as quickly as possible after careful preparation, according to improved surgical technique. A median incision should be made down to the rectus, this muscle separated to the left of the median line, opening the peritoneum freely. This is sometimes accompanied with escape of fluids. The extravasated fluid is wiped away with sponges gently, never irrigate or wipe hard enough to cause any irritation of the serous surface because it only renders it more liable to absorb septic material. The liver should be raised upward and the stomach grasped with a firm grasp, breaking as few adhesions as possible and pulled downward and forward. After the perforation has been located it should not be curetted or excised, but closed with at least two rows of Lembert sutures. Care should be taken to invert the edges sufficiently to permit of a firm and secure union. Keen suggests that the line of a suture be covered with an omental graft. Before closing care should be used in looking for a second perforation. The stomach is allowed to recede into the abdomen with ample drains inserted of strips of gutta percha, one and one-half inches wide and of sufficient length to be securely pinned together on the outside. The peritoneum is sutured and the rectus muscle and skin are closed together. There is not much danger of hernia in these cases.

The technique of the operation for gastric hemorrhage is the same as for gastric ulcer. The entire stomach should be examined, giving special care to perigastric adhesions, and if the indurated spot can be found from the outside it may be excised. If not, there should be made an anterior longitudinal incision midway between the greater and lessor curvatures, enough to permit the introduction of the index finger. The posterior wall of the stomach should be examined through this incision. This can be accomplished by making an incision through the gastrocolic omentum and introducing the finger pushing the stomach forward. If hemorrhage is progressing at the time no trouble will be encountered. If not, a search for the induration or the enlarged vessel should be made. Failing in this a sponge may be rubbed gently over the mucous membrane and by this procedure the bleeding point may be found. The ulcer may be tied en masse or may be incised and sutured with two rows of sutures. The bleeding vessels should be tied outside the indurated mass.

I have spoken of the operation of emergency for gastric hemorrhage and gastric ulcer without gastroenterostomy. Now, we will consider the operation for artificial drainage of the stomach, as indicated in a certain number of cases of chronic dyspepsia due to diseased condition of stomach and duodenum. In operation for hemorrhage where drainage is desired, and in chronic ulcer where the condition may pass into malignancy and in perigastric adhesions with great pain and discomfort.

I should like to cite a case where I consider drainage desirable, where there is probably no pathological lesion or none except an intense and persistent degree of gastritis, where proper regulation with proteid diet will not control. A patient, usually a man between 25 and 45 years of age, who complains of periodic attacks of indigestion, having intervals in which he feels comfortably well, tells you that at times he can eat anything, but without any known cause he has a recurrence of pain coming on about two hours after eating and lasting for three or four hours, or until he takes food or drink or a small draft of soda solution. I have known patients to go to bed with a piece of bread and butter or a glass of milk within reach, for they have found by experience that the taking of food relieves them. These attacks usually occur in the early Spring when the weather is chilly. Warm Summer weather seems to agree with them. The patient tells his own story and is convinced himself that the taking of bland liquids and food are the best medicine for him. He loses weight in spite of his eating and is irritable and restless. A chemical analysis reveals an excess of

acid in the stomach, the presence of sarcine which is the evidence of gastric stasis. Cases of this type are often said to show Boas Oppler bacilli, but this is not a fact. They occur in the stomach only when there is no hydrochloric acid.

Mr. Moynihan, of Leeds, insists that cases whose symptoms have just been described are not cases of gastric erosion or gastric ulcer, but that they are cases of ulcer of the duodenum. He asserts that the pain coming on after meals at certain periods is caused by the passage of acid stomach contents causing the irritation of a duodenal ulcer. He is a man of vast experience with these cases, having reported more than 500, and it seems reasonable to suppose that many of the cases that we have before considered as cases of gastric disease may be duodenal ulcers.

I will now describe the operation of gastroenterostomy as practiced by Moynihan, Mayo, Robson, Dever and most of the surgeons of to-day. The posterior, no loop, gastrojejunostomy.

An incision about four inches long is made above the umbilicus, splitting the right rectus muscle about three-fourths of an inch from the median line. The stomach, the pylorus, the duodenum, the gall bladder and the bile ducts are carefully examined. The omentum, transverse colon, and the stomach are delivered and turned above the incision on the abdomen and covered with gauze wrung out of hot salt solution. A bloodless point in the transverse mesocolon is found and an incision is made into the smaller omental cavity. This is torn larger with the finger. The opening should be from one and one-half to two inches, or large enough for the posterior wall of the stomach to be pulled through, with the left hand above the omentum and colon, the stomach is made to protrude into the opening of the mesocolon. The posterior wall is caught with the fingers or forceps, care being used not to tear the stomach. A fold, three or four inches, is caught in the rubber-covered blade of Mayo's intestinal clamps. The clamps are applied either obliquely from the lowest part of the greater curvature toward the cardia, or vertically. I believe that the oblique application is to be preferred. When the anastomosis is made in this direction and the stomach is returned to the abdominal cavity both stomach and jejunum will sustain nearly their normal relation, there being no loop or twisting of the bowels, so that the stomach contents may pass uninterruptedly into the distal end of the bowels. The only change then from the normal relation and condition is the attachment of stomach and intestine and the gastrojejunal opening. Hence, there can be no vicious circle or regurgitant vomiting. Jejunal gauze wrung out of sterile salt solution is now applied under and around the clamps so as to protect the peritoneal cavity against any possible infection from leakage of the stomach or intestinal contents after the stomach and jejunum are incised. A portion of the stomach and intestines embraced in the clamps are brought evenly together so that the ends of the blades are at the same level at the bottom of the greater curvature of the stomach. The stomach and jejunum are now united by a line of continuous sutures including the serous and submucous coats, beginning at the shank of the forceps and continuing to the ends of the blades. The suture line is from left to right, from the proximal to the distal end of the bowel. The line of suture is never less than two inches, and in dilated stomachs it may be three and one-half inches, so as to guard against too much narrowing of the gastrojejunal opening after the stomach finally contracts approximately to its normal size. I use a Moynihan needle with a slot eye curved over half circle; linen or silk thread may be used. I leave a six-inch end at the beginning of the suture, and at the end of the first line of suture the thread is left long enough to complete the second line of seroserous suture around the gastrojejunal opening after the cut edge of the stomach and bowel have been sutured through all the coats entirely around the incision.

After the first line of sutures has been applied the stomach and intestines are incised 1/6 and 1/5 of an inch away from the line of seroserous suture down to the mucous membrane, which bulges in the wound and is excised; about one-half inch of the membrane is removed. This facilitates the correct apposition of

the serous, muscular, and mucous or through and through suture. The second suture begins at the proximal end of the jejunum and must include all the layers of stomach and intestines so as to put the cut edges into perfect apposition and leave no open raw surface. An end of this suture about six inches long is left and the suture is drawn sufficiently tight not only to secure perfect apposition, but to control hemorrhage. It is carried entirely around the opening and tied to the end of the suture left at the point of beginning. The clamps are unlocked and if any bleeding point is seen an interrupted suture is applied, but this usually is not necessary. With the first seroserous suture left long at the greater curvature of the stomach, a line of suture is now applied above and in front of the gastrojejunal opening to the point of beginning and tied to the end left. This is the continuation of the suture that includes the serous and subserous coat. The exposed parts of the stomach and bowel are now gently sponged with gauze wrung out of hot salt solution and allowed to fall back into the abdominal cavity. The omentum, transverse colon and stomach are again delivered on the abdominal wall and with a cat-gut suture the edges of the opening through the transverse mesocolon are attached around the gastrojejunal anastonosis. There should be about four interrupted sutures attached to the jejunum. This prevents hernia into the lesser omental cavity. The omentum, transverse colon and stomach are again allowed to return to the abdominal cavity, and the peritoneum is sutured with a continuous cat-gut suture. The rectus and skin are sutured together and the operation is complete.

These patients should be put in the Fowler position and no fluids given for twenty-four hours, when the giving of light liquid diet can be commenced without complication. These patients do as well as any patients where an operation upon the viscera has been performed.

CONCLUSIONS.

1. A certain number of persistent cases of gastritis that are not amenable to treatment, where there is great discomfort and probable formation of ulcer, should be drained.

2. Cases of acute and chronic gastric and duodenal ulcers that are dangerous to the life of the patient and are very liable to become malignant, should be drained.

3. In cases of carcinoma where the obstruction is great and partial gastrectomy can not be performed, should be drained.

BOONE COUNTY.

Regular Quarterly Meeting July 9, 1908.

The Boone County Medical Society met in the Y. M. C. A. parlors at Belvidere, Ill., Thursday, July 9, at 2 p. m. After transacting routine business, the symposium on Tuberculosis was heard. Dr. Willis Butterfield of Belvidere, and Dr. J. W. Pettit, our State Society president, presented original and practical papers. Dr. Stealy of Freeport, our district councilor, was also present, and helped to make the discussion bring out salient points.

President Pettit's presence was helpful and inspiring to us individually, and as a society. In the evening, Dr. Pettit addressed an audience, made up of the thinking people of the city that filled the Y. M. C. A. Auditorium, on "The Tuberculosis Problem." The lecture aroused much interest, and gave the people much needed information on this vital topic. The Belvidere *Daily Republican* was very accommodating in the publication of preliminary notices of the lecture, and afterwards printed it in full. CHARLES R. SCOTT, *Sec.*

COOK COUNTY.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting, held Dec. 10, 1907.

Regular meeting, held Dec. 10, 1907, with the President, Dr. Holinger, in the Chair.

Dr. E. Fletcher Ingals read a paper on

INTRANASAL DRAINAGE OF FRONTAL SINUS.

DISCUSSION.

Dr. H. Stolte, Milwaukee:—Is not the operation limited by a marked septum deviation?

Dr. Ingals:—Yes, that must be remembered.

Dr. Stolte:—I have employed this procedure in three cases, successfully in two cases. In the third case there was a marked reaction; an edema in the lower part of the nasal duct, and so much pain, that I took out the gold tube and treated through the opening, simply by syringing. The case terminated successfully.

Dr. Ingals:—You ought to have left the tube in place. I saw marked edema in one case, the patient being in the active stage of syphilis.

Dr. Stolte:—In my case there was marked deviation of the septum. I would like to ask Dr. Ingals whether he would do this operation in a hemophiliac.

Dr. Ingals:—I would do the operation in any case. It is done so quickly that the patient could not bleed enough to do any harm, and afterward you can pack with gauze. I use cocain with suprarenalin and it stops bleeding at once.

Dr. Good:—How often does the tube cause irritation?

Dr. Ingals:—Never.

Dr. Good:—How often does it cause acute ethmoiditis?

Dr. Ingals:—Never.

Dr. Good:—What objection would there be in removing the anterior ethmoidal cells in every case?

Dr. Ingals:—I do not believe in doing a lot of things that are unnecessary, although it would not interfere with the operation.

Dr. Good:—If a larger cavity could be made so that the frontal sinuses could be examined and particles scraped out for microscopic examination, would not that be of considerable advantage?

Dr. Ingals:—It might in rare cases, but not usually. I have had two cases that seemed to indicate that a larger opening was necessary. At the orifice of the nasofrontal duct there was a valve-like arrangement of the mucous membrane, not enough to limit its caliber, but it acted in such a way that it would prevent air from going in.

Dr. J. C. Beck:—Do you always do this operation with the patient in the sitting posture?

Dr. Ingals:—In two or three cases I did it with the patient reclining; otherwise I always have him in the sitting posture.

Dr. O. T. Freer:—The claim is made that frontal sinuitis is accompanied in a very large number of cases by suppuration of the ethmoidal cells; that a simple, uncomplicated frontal sinus suppuration is a rarity. What is your experience in that regard?

Dr. Ingals:—If the frontal sinuses have been suppurating, the bur has opened them enough so that any other procedure was unnecessary.

Dr. W. E. Casselberry:—I have had occasion previously to express my admiration for the ingenuity which is exemplified in this instrument. It seems to fill the long felt need for an instrument with which one can with reasonable safety enter the frontal sinus through the nose. I have used it in one case successfully, three years ago, and I had an opportunity recently to examine the patient thoroughly, enabling me to report the result. The slight modifications which I used in the procedure were, I think, quite immaterial, although they satisfied me a little better at that time than the conventional method as Dr. Ingals has related it. For

instance, I did not use an electric motor, but substituted a plain, strong handle with which to rotate the burr by hand power, which worked all right. And I did not make the operation all at one sitting, but bored a little way in the first time, and about a week later bored in the rest of the way, and I was surprised at the ease with which I was able to make the large passage through to the frontal sinus. I did not use a gold tube or any tube, fearing that it might not be well tolerated, as it is a foreign body. The patient returned to his home in Wheeling, W. Va., and had his local physician, Dr. Ackermann, supervise the after-treatment. The patient soon reported that he was getting along finely; he regained his former good health, the discharge lessened in quantity until it became very slight, the headaches ceased, and his serious despondency and dazed mental state disappeared. About two years after the operation the physician in Wheeling, who had subsequently provided himself with the Ingals instrument and who was sufficiently expert in nasal manipulations, again passed it through to the sinus, although I do not think, from his account, that it was really necessary, rather as, he said, simply precautionary against narrowing. At the end of three years when I again had the opportunity to thoroughly examine the patient, I found the passage widely open, a washing canula easily passed; the man could do it himself, if it were necessary, which it is not often, the secretion being very slight.

I call this patient practically recovered, and I do not believe that these patients often do get entirely and completely well either by this or other methods. There remains a slight discharge, perhaps from the ethmoidal cells, but it is not always even of a strictly purulent nature, usually now mucopurulent, although at the time of an acute rhinitis, it is more nearly purulent. This is the degree of recovery which in my experience can be looked for from the operation rather than an absolutely perfect recovery, but it is recovery enough. The patient is relieved of all serious symptoms, and the trifling secretion left amounts to nothing. Personally, I would rather have that than an external operation, with even, were it likely, a perfect recovery.

Dr. O. T. Freer:—One condition contraindicating the intranasal opening of the frontal sinus should be mentioned. I refer to sinuitis frontalis exulcerans or exedens, as it is called by Killian. In this form of empyema of the frontal sinus the suppurative process has penetrated its walls by caries and direct perforation or else by the route of lymphatic extension or septic vascular thrombosis. Foci of septic inflammation are thus created outside of the confines of the sinus, forming most often in the orbit, but sometimes, after passing through the posterior sinus wall, subdurally or in the frontal lobe. The usual extensions of the suppurative process beyond the limits of the sinus into the orbit are commonly accompanied by such marked swelling of the integument of the forehead and lids that their recognition is comparatively easy. Where suppurations external to the sinus exist the radical opening of the sinus from without is the only proper procedure. I have had the honor to be associated with Dr. Ingals in his careful cadaver investigations and operations during the construction of his method of intranasal opening of the sinus, and I regard it as so well planned and so perfectly adjusted to the anatomical conditions found that I can conceive of no other way of entering the frontal sinus through the nose which so perfectly combines safety with certainty.

Dr. George E. Shambaugh:—I have little doubt but that the majority of cases of frontal sinus disease are better taken care of by intranasal work than by external operation. In the acute cases it is rare, indeed, that one must do more than apply local astringents or adrenalin about the middle meatus. In chronic cases, as a rule, the patient is, I believe, best treated by intranasal work, and most cases are treated satisfactorily without even using a bur to open the nasofrontal duct, doing no more, indeed, than to remove the anterior end of the middle turbinated body, thus allowing free escape of secretion from the sinus. In many cases I have seen there was apparently a complete cessation of suppuration in chronic cases following this procedure, and in most cases a complete relief of annoying symptoms. I think that these patients are usually better off than when operated on externally.

Dr. R. H. Good:—I had a few patients operated on by the intranasal route, and an acute ethmoiditis developed in several instances. Since then I have removed the anterior ethmoid cells entirely with more satisfactory result. Furthermore, I did find a case in which the cannula could not be passed into the frontal sinus after the anterior ethmoidal cells had been removed.

I consider that Halle's method is dangerous because the bur could penetrate the dura. I believe in a large opening, so that the frontal sinus can be examined and curetted, if necessary. I do not believe in using a gold tube and cannula. Treat the opening with silver nitrate, to keep it open, and patients get well quickly.

Dr. Otto T. Freer presented a specimen of a typical bony deflection beginning far back in the nose, and which can be removed easily by submucous operation.

Dr. Geo. Paul Marquis demonstrated some new instruments devised by Killian for use in bronchoscopy.

SARCOMA OF ROOT OF TONGUE.

Dr. A. M. Corwin reported this case. The man had lost in weight but complained mainly of a sensation of a mass at the root of the tongue. Family history was negative, as was the personal history, except for a gonorrhea and a complicating cystitis. A growth was evident on examination, occupying the base of the tongue and pressing on the epiglottis. A number of smaller growths surrounded the base of the parent growth, evidently springing from the faucial tonsils. The main tumor, about the size of a walnut, had been scraped by a local physician, and this was followed by symptoms of infection. The surface of the tumor was irregular; the tumor bled easily and was dark in color. The microscopic examination disclosed a round-celled sarcoma.

For some months the patient had griping pains in the epigastrium following the ingestion of food, liquid or solid. Trypsin injections were given, beginning with a small dose. The patient did not improve until he passed from the rectum what appeared to be a cast of the bowel. Improvement, both local and constitutional, followed, and the man is now feeling entirely well. There has been no recurrence of the growth.

Dr. Geo. E. Shambaugh:—I reported a case of sarcoma of the base of the tongue several years ago in the *American Journal of the Medical Sciences*. These tumors are almost invariably small round-celled sarcoma. At that time, 1902, only nine cases in all had been reported, and all were of this type except one, which was a spindle-celled sarcoma. My case was a large spindle-celled sarcoma.

In regard to the apparent beneficial effects of trypsin: It must be remembered that these tumors occasionally recover of their own account. Several of the nine cases reported had recovered. One recovered following the use of injections of pyoktannin. Trypsin, however, should certainly be tried in these cases, and I am not prepared to say that the results in Dr. Corwin's case were not due to that agent.

Dr. C. M. Robertson:—I do not believe that the trypsin did any good at all. It probably is one of those tumors that disappear for a while and then metastases manifest themselves in the liver or elsewhere. I think that in nearly all these cases there is a recurrence, even after thirty years, as was shown in a study of cases of sarcoma of the eye in the Moorfield Hospital.

Regular Meeting, held Feb. 11, 1908.

Regular meeting, held Feb. 11, 1908, with the President, Dr. A. H. Andrews, in the Chair. Dr. J. G. Wilson read a paper on "Some Points in the Anatomy of the Frontal Sinus. Dr. R. H. Good described

AN INTRANASAL METHOD FOR OPENING THE FRONTAL SINUS ESTABLISHING THE LARGEST POSSIBLE DRAINAGE.

R. H. Good, M.D., Chicago.

The principal points of advantage in my operation are:

First.—The establishment of the largest possible opening from the frontal sinus into the nasal cavity.

Second.—The practical impossibility of injuring the dura.

Third.—The removal of all the anterior ethmoidal cells to give better drainage; as well as to remove diseased cells, which may be associated with frontal sinuitis and to prevent an acute or a chronic ethmoiditis following a frontal sinus operation.

Fourth.—The possibility of curetting practically the entire sinus and subsequently making topical applications to the mucous membrane in the sinus if necessary.

The instruments used in this operation are two frontal sinus rasps, two tapering curved chisels, three protectors, and long flexible curettes.

The frontal sinus rasp is made on the same principle as the old-fashioned, coarse, horseshoe rasp, from which I derived the idea. It is slightly curved at the rasp end to fit into the frontal sinus, and the teeth are on the longitudinally concave surface, pointing toward the handle, so that when traction is made on the rasp the bone anterior to it is rasped away. The posterior surface of the rasp is perfectly smooth and flat. The chisels are short, curved and tapering. The handle at the chisel end is very slender so that the chisel may be manipulated under the direct vision of the eye. The corners are tapering as well as blunt, so that if the angle of the chisel should strike a bony surface it would tend to glide off instead of penetrating. The protectors are made of brass and in three different widths. They can be bent easily into shape on the flat, but not sideways.

The operation consists of the following steps:

1. The removal of the middle turbinate. This can be separated from its attachment to the ethmoidal labyrinth with a curved knife, such as I use in tonsil resections, or with Kyle's nasal saw, and then removed with forceps or snare.

2. The removal of the ethmoidal cells and the unciform process of the ethmoidal bone.

I have found Dr. Ballenger's ethmo-cribriform knife very valuable for separating the ethmoid cells from the cribriform plate. This instrument is introduced into the ethmoidal labyrinth just below the superior turbinate and drawn upward to the floor of the skull and then forward to the frontal sinus. The unciform process of the ethmoid is removed from its attachment above by first putting a probe into the sinus and then with the larger sized chisel the delicate structure can be separated above by simply making pressure on the chisel and at the same time giving it a slight rotary movement. The unciform plate and ethmoidal cells are now removed as thoroughly as possible with biting forceps, such as Hartman's, and then curetted out so that they are removed up to the floor of the skull.

3. Chisel off a little of the frontal process of the superior maxilla and separate the anterior medial wall of the ethmoidal labyrinth from its attachment to the frontal spine.

The anterior portion of the medial wall of the ethmoidal labyrinth at its attachment to the frontal spine, being impossible to bite out with forceps, can easily be removed with the small chisel. With the unciform plate out of the way, almost any diseased frontal sinus can be probed. One or two protectors are introduced into the sinus. The chisel is held in a direct line with the protector and under the direct vision of the eye. It is held at a tangent to the orbital wall of the sinus, so that it is impossible to injure the cribriform plate as the chisel is directed externally to this structure.

The lacrimal bone and lamina papyracea of the ethmoidal bone are protected by an assistant putting his finger into the orbit who can notify the surgeon if the chisel is touching these structures. As stated above, the chisel is held at a tangent to the orbital wall, and, being curved, with the corners dull, it would tend to lift the orbital periosteum instead of penetrating, as the case would be with a sharp-cornered straight chisel.

The internal table of the frontal bone is the important structure to guard against injury, and this is protected first by one or two protectors, past which the chisel can not go if held in a direct line with it. In the second place, there is a considerable distance between the frontal process of the superior maxilla and the

internal table of the frontal bone, so that the chisel, being firmly held by the hand, loses its momentum before reaching the internal table. In the third place, the corners of the chisel are blunt and tapering, so that if the corner of the chisel should strike the posterior wall it would tend to glide off instead of penetrating this structure. Again, I advise using a very small mallet and make light taps so that one has absolute control of the chisel.

4. Rasping away the lateral aspect of the frontal spine and thereby enlarging the space between the spine and the orbital wall of the sinus. The rasp is introduced into the sinus externally to the frontal spine (not back of the spine, which is impossible) and internally to the orbital wall. By rasping forward and toward the septum the space between these two structures is enlarged at the expense of the frontal spine. The rasp is perfectly smooth posteriorly so that the internal table can not be injured. Care must be taken not to withdraw the rasp too far while rasping, as it will injure the septum. The structures to be guarded are the lacrimal bone and the lamina papyracea of the ethmoid, which is easily done by the surgeon putting his finger into the orbit while rasping.

5. Curetting the sinus if granulation tissue, polypi or tumors are felt in it. The curette must be long and flexible so that all parts of the sinus, except those back of trabeculæ, can be reached. The sinus in ordinary cases is packed with gauze, which is removed the following day, after which the patient is left alone. No matter how large one makes the opening into the sinus, it has a tendency to close, especially in cases with profuse purulent discharge. In very chronic cases with profuse discharge and polypoid formation it is necessary to put in a tube to keep the ostium from closing with granulations. For this purpose I use a gold-plated tube made of coarse cloth wire, which is left in the sinuses for variable lengths of time, depending upon the amount of the discharge. The tube, being sieve-like, allows drainage into the walls of the tube, as well as through the end opening. The rough surface of the tube keeps it in place.

The operation can be performed under local anesthesia by rubbing adrenalin chlorid and crystals of cocain into the olfactory region and by injecting a small quantity of a 10 per cent. solution of cocain in adrenalin chlorid (1:1000) into the frontal sinus. It is, however, better to put the patient to sleep at the latter part of the operation when the frontal sinus rasp is being used. I operated my last two cases in this way and found it more satisfactory to the patient and myself. It is necessary to use a Kierstein head-light, as the ordinary concave mirrors can not focus the rays into remote cavities.

The reaction following this operation is very slight. Only in one case was there edema in the region of the inner canthus, and patients who have been suffering with headache or pain are instantaneously relieved, as illustrated by the following cases.

Case 1.—Miss F., Chicago, American, aged 21, and engaged in office work. Eight months before consulting me patient sat up late on the porch and contracted a cold, which was followed two days later by acute frontal sinuitis. During these eight months the patient complained of headaches almost every day. The pain started shortly after rising in the morning and continued for periods varying from one to four hours. She had three acute attacks during this time, when her pain would be severe, and her left eyelid would swell so that she could hardly open the eye. During the last attack she was admitted into the Eye and Ear Hospital, where she was treated for iritis with atropin, according to her statement. After leaving the hospital she was asked to return in a few weeks to have her eyes straightened by a tenotomy. Being afraid of an operation on her eye, she consulted me Feb. 20, 1907.

On examination I found a drooping of the left upper eyelid, which varied in degree, according to the severity of the pains. There was a manifest convergent strabismus, but no paralysis of any of the muscles of the eye. With Maddox rod test it showed an esophoria of 14 per cent. and a right hyperphoria of 5 per cent., showing an impairment of function of the superior oblique and the external rectus of the left eye, or, in other words, an involvement of the third, fourth and sixth cranial nerves. (I failed to note in this case whether the pupil was dilated,

which occurred in two of my cases.) The sinus was very tender on pressure, the pain radiating to the left temple and occiput. Coughing and sneezing increased the pain in the sinus. On examination of the nose, the left nostril was practically obstructed by hypertrophy of both the inferior and middle turbinals, and the latter was so large that the septum was pushed to the opposite side. Some secretions were seen under the middle turbinate, which, however, did not appear purulent. Freer's transillumination lamp showed less illumination of the left than of the right sinus, and the *x*-rays showed a greater density of the left sinus. Spraying the nose with cocain and adrenalin relieved the patient for ten hours, but was of no help thereafter.

February 21 I removed the middle turbinate and passed a catheter into the frontal sinus to make sure that the ostium was patulous. The patient derived no relief from this operation, and I allowed her to go for a month or more, thinking that it might get well. April 4 I took her to the hospital and performed my frontal sinus operation under local anesthesia. Immediately after the operation the patient was relieved of pain, which has not recurred to the present time. Two months after the operation there appeared a polyp in the frontal sinus opening, which I removed and cauterized the base with stick silver nitrate. The ptosis disappeared one day after the operation, and there is only two degrees of esophoria, instead of 14, and no hyperphoria. I kept the patient at the hospital four days, as I wanted an accurate record and the patient kept under careful observation. During these four days the temperature was normal, except at 4 p. m. for the first three, when it went up to 99. The highest pulse rate was 80. There was possibly the slightest amount of swelling around the inner canthus of the left eye the day following the operation, but it was hardly noticeable, and the patient was free from pain.

Case 2.—Mrs. McC., Chicago, aged 43, complained of severe pain in the region of the right frontal sinus for the past six weeks. She consulted a specialist regarding her eyes, who sent her to a neurologist. She received treatments from the latter for about six weeks, but gradually became worse until finally she was confined to bed and called in Dr. C. C. Rogers, who made a probable diagnosis of frontal sinuitis. Having known about my intranasal operation, the Doctor referred the case to me in preference to operating himself by the external method.

On examination I found a marked ptosis of right upper lid, paresis of the superior, inferior and internal recti muscles, the pupil was somewhat dilated and sluggish in reaction to light. Pressure over the right sinus caused severe, deep-seated pain, which radiated to the parietal region. The patient had a diplopia and with the Maddox rod showed an exophoria of 16 degrees, but there was no hyperphoria. Examination of the nose showed a deflection of the upper part of the septum to the right, so that the middle turbinate was pressed upon. The turbinate was about normal in size and there was no discharge seen under the middle turbinate. With a probe in the sinus a grating could be felt as though there were bare bone in the sinus. The *x*-ray showed greater density of the right sinus.

On April 24, 1907, the patient was admitted to the hospital and operated on the following day. Immediately after the operation the pain left her and she enjoyed a good night's rest for the first time in six weeks. The ptosis disappeared at the same time. The patient had a normal temperature all the time she was in the hospital, except for the first four days, when it raised to 99.4 at 8 p. m. on the first day and 99 at 4 p. m. on the three following days. After two weeks the patient had lost her diplopia, even with the red disc test and she had an exophoria of 2 degrees instead of 16 degrees. Her pupil remained slightly dilated, but the superior inferior and internal recti muscles resumed their action. Four weeks after the operation the patient was taken with pain, which she described as being deep-seated between the eyes, and there was a slight edema above and below the inner canthus of the right eye and a tenderness on pressure over the ethmoidal cells. She had a temperature of 100. I removed some of the anterior ethmoidal cells, and the temperature dropped to normal and the pain stopped and the patient was well again. I consider that this was an acute ethmoiditis, so that I now remove the anterior ethmoidal cells at the time of the frontal sinus operation.

CASE 3.—Miss M., aged 29, was referred to me by Dr. Atkinson Sept. 27, 1907. The patient complained of severe left-sided frontal headaches for the past year, especially in the morning, and gradually growing worse. She complained of an increased nasal discharge which, she thought, was about the same in quantity from either side. Two months before the patient had an edema of the left eyelid and excessive pain. The pain radiated to the occiput and was markedly increased on pressure over the left frontal sinus. The left pupil was dilated and reacted sluggishly, which the patient said had been the case since her trouble in July. On taking cold her headaches were more severe. The temperature was 99½ at the time of the first examination. The left sinus, on transillumination, showed a shadow, and the *x*-ray showed a greater density. There was no drooping of upper lid and no involvement of the extrinsic muscles of the eye. On examination of the nasal cavity I found an enlarged middle turbinate on the left side and underneath it a small polyp. I could not detect any secretions under the middle turbinate at this time.

On operating I found at least ten polypi filling the various ethmoidal cells, which I removed thoroughly at the same time I performed the frontal sinus operation. Four weeks after operation the pupil was almost normal in size and its reaction to light practically normal. I have difficulty in this case to keep the sinus open, and the canal fills up with granulation tissue, and I may insert one of my gold-plated wire tubes to keep the passage permanently open. The patient remained in the hospital one week and had a normal temperature every day, except the first, when it was up to 99.2. There was no edema of the eyes.

CASE 4.—Miss R., River Forest, Ill., aged 36, American, came to my office Jan. 1, 1908. Three years ago the patient had an acute rhinitis, which was followed a few days later by severe pain and headache over her left eye. In five days these pains subsided, but there was an increased discharge from the left nostril, and for six months the patient says she had a bronchitis, which, I think, was due to the pus causing a continued irritation in the pharynx. She has had a constant discharge during these years and occasionally a dull pain and headache over the left eye. On Dec. 31, 1907, she developed an acute frontal sinuitis, with the following symptoms: One week previous the patient was again taken with an acute coryza and the nasal passages were obstructed considerably. She complained of severe pain over the left sinus, which radiated to the occiput. She also complained of deep-seated pain back of the left eye. There was marked tenderness on pressure over the left sinus. When blowing her nose the pain was felt mostly in the occiput, while coughing or sneezing increased the pain in the sinus. There was a slight drooping of the left upper lid, which varied according to the severity of the pain. The muscles of the eyes were normal and the pupil was not dilated.

On examination of the left nose the middle meatus was filled with a creamy, yellow pus, which, when washed out, could be seen coming from underneath the middle turbinate. The latter was considerably enlarged and from below it there projected a polyp which seemed to grow from the infundibulum.

The nose was sprayed with adrenalin and cocain, and the patient was asked to spray the nose three times a day with adrenalin chlorid. The first treatment gave relief for eight hours and subsequent treatments failed. Freer's transillumination lamp showed a shadow over the left sinus, and the *x*-ray plate was a little lighter over the left sinus than the right.

On Jan. 3, 1908, I removed the middle turbinate, polyp and the anterior ethmoidal cells and passed a heavy probe into the sinus. This operation did not give any relief whatever, and on January 10 I performed my sinus operation. She slept well the same night and has not had any pain since. She remained in the hospital four days. Her record shows a temperature of 99 on the second day and normal the two following. There was no edema of the eyelids following the operation.

DISCUSSION.

Dr. Joseph C. Beck:—I had an accident during an intranasal operation done according to Halle's method. The result was a local meningitis. Halle's, Ingals' and Good's methods seem to offer practically the same chance for danger. I find

that the greatest difficulty with these operations is the getting into the frontal sinus. Dr. Good says that the whole sinus may be drained by this method, and the others make the same claim. I have a radiograph of one case which shows that that is impossible, because the sinus was bisected by a bony septa. I can not see how any of these methods would drain that sinus. Of course, an intranasal operation is preferable to the external operation, and it seems to me that Dr. Good's method is a valuable one, especially the use of the rasp. I will give the method a trial for that reason.

Dr. Wilson's means for measuring the cribriform plate of the ethmoid will be of very great value to us. I have been trying to do the same thing by means of skiagraphs, but the method is more difficult and not as accurate as Dr. Wilson's.

Dr. A. M. Corwin:—The demonstration of Dr. Good's method was very nice, indeed, but fill in these cavities with mucous membrane and pass into it an instrument of the size of this rasp, and at this angle, and I fear that it will inflict considerable damage all along the tract. We would be sure to injure all the structures and cause the formation of adhesions, militating against the possibility of perfect drainage. To pass this rasp well up into the frontal sinus it seems as though we would have to go into the mouth and through the palate, judging from the skull which is being used as a model.

Dr. W. L. Ballenger:—I am glad that statistics do sometimes agree. Logan Turner says that about half of the fronto-nasal ducts drain into the infundibulum and the remainder into the middle meatus. I had just the same experience that Dr. Wilson referred to, namely, that the names for these various structures are confused in the literature, and I, therefore, use the B. N. A.

As to accidents, I think that those who do the external operations can report just as many accidents as can those who do the intranasal operations; perhaps, the percentage of the former is even greater, especially when the radical operation is done. So that it can be maintained that the intranasal operations are more dangerous than the external operations. I believe that they are much safer.

Now the question arises as to whether Dr. Good's method is feasible and practical. The rasps look as though if once you got them into the sinus there would be no occasion to operate, although that is not necessarily true. I am impressed with the method as described by the Doctor, and I am not sure that it is not a good operation. I will try it.

I am not so much afraid of the dangers pointed out by Dr. Wilson, although they are to be considered. If I cracked the frontal plate, I would not expect the patient to die of meningitis because the dura is exposed. We see that in mastoid operations over and over again, and in more than one external operation without any danger. So that if Dr. Good should fracture this plate with his rasp I would not expect the patient to die of meningitis, although he might. But that is also true of the external operation.

I had an external Killian operation a few days ago in which a portion of the cranial plate came away. It was fractured, and I do not know how. The dura was exposed over an area as large as my thumb nail and there was no trouble. So that these accidents do not necessarily produce harm, but they should be avoided.

As to hemorrhage, you may have it from the anterior ethmoidal artery, no matter how simple the operation. So that I am still open to conviction as to the proper route for operating on the frontal sinus.

In reference to the plate Dr. Beck showed, that is not an argument against the intranasal operation. True, by external operations you can break down these cells and get better drainage, but drainage is not the only thing to be sought for in these operations, although it is of prime importance. Ventilation is also of great importance. I have found that if you ventilate a cavity, the infection will usually cease, even if the drainage is not perfect.

Dr. George E. Shambaugh:—For the relief of most of these frontal sinus cases intranasal work is all that is required. Even in the majority of the chronic cases the radical external operation is to be done only when we do not get satisfactory relief from the severe symptoms by an intranasal operaton. I am especially

pleased with the elaborate details Dr. Good worked out, but there is one point that must not be lost sight of, and that is confusing the idea of a radical operation with that of best results. The most radical operation will often not give as satisfactory result as the more conservative procedure. This is especially true in the frontal sinus cases, when the choice is to be made between an external operation and an intranasal one. And in the intranasal operation for the drainage of the frontal sinus the most radical tearing up of these parts does not necessarily assure result better or even as good in the majority of cases as more careful, conservative procedure.

My work usually consists of using forceps to remove the turbinate body and to get out the anterior ethmoid cells, and I usually get satisfactory drainage in that way. One can take out the entire ethmoid labyrinth with these forceps. The one instrument shown by Dr. Good that appeals to me the most is the rasp to be used to enlarge the frontal sinus opening. But the question arises whether it is necessary to use this rasp if the opening present is sufficiently large to admit the rasp. It is only when the opening is obstructed that symptoms are likely to be annoying, so that if you can pass in the rasp there is usually no obstruction, hence no symptoms. I should be inclined to try it, however, where the usual intranasal operation did not give results.

In regard to the operation for removing the floor of the frontal sinus with chisels, this can do doubt be successfully accomplished in cases where the posterior wall of the frontal sinus is separated by a considerable distance from the anterior wall. But there are other cases where a study of the relations in a cadaver shows that such an operation is practically impossible without breaking through the cribriform plate. I will pass around an anatomical preparation where this is the situation. Here the cribriform plate extends fully half an inch anterior to the opening of the nasofrontal duct. In this case, even if it were possible to work with the protectors which have been shown this evening, which I hardly think could be used in such a case, I do not see how a chiseling operation can be done without great probability of injury to the cribriform plate. The narrow chamber in which this work must be done prevents the placing of a chisel at such an angle as to obviate in any way, it seems to me, this danger. In this specimen, for example, the opening of the nasofrontal duct is scarcely one-quarter of an inch from the cribriform plate. I can hardly conceive the possibility of using a chisel even on the cadaver where the view is not obscured by swollen and bleeding tissues without the possibility of fracturing the cribriform plate.

As to the danger of exposing the dura in such operations we have learned from our work upon the mastoid that the mere exposure of the dura, provided this is not injured, is not fraught with any degree of danger. In the case of the frontal sinus, for example, the exposed dura on the posterior wall of the frontal sinus need not necessarily greatly increase the danger of the operation. An injury to the cribriform plate, however, is quite a different matter. This plate is perforated by numerous nerve filaments and lymphatics, which brings the dura into close relation with the intranasal cavity. A mere fracture of the cribriform without so much as a perforating wound must result in considerable laceration of these prolongations, and opens the way to a most ready infection in this part.

As far as I have been able to judge of the several intranasal methods of enlarging the opening of the frontal sinus into the nose, it seems to me that the method which has been devised by Dr. Ingals, that of passing a burr over a pilot, presents by far the safest method that has yet been suggested.

Dr. J. Holinger:—The intranasal treatment for chronic suppuration of the frontal sinus will never entirely take the place of Killian's external operation, although the latter is indicated in only a few cases. The opening and drainage of the different sinuses is not the only indication for our therapeutical endeavors. The mucous membrane is usually affected in such a manner as to continue to make trouble even though drainage is perfect, as the following case will demonstrate: A surgeon of this city opened up all the sinuses in a case which took him three months to accomplish, but never thought of washing them out. The patient was not relieved. I washed out the sinuses with boric acid solution and every

symptom disappeared at once. The sinuses were filled with decomposed pus and mucus, and a very few washings were sufficient to ease the most distressing symptom.

Another point: The bones in the upper part of the nose in these old chronic cases are not normal, but are extremely brittle. Any instrument in the duct may easily injure the bony septa. One may even break through any cavity and into the skull with an irrigation tube or a probe without using any force at all. Therefore, one must be very careful in these cases. It has happened twice to me to have a patient collapse during the washing of the sinus. In one case I saw at a subsequent operation that the inner plate was necrotic, and that the fluid had probably forced its way into the extradural space.

As to the experiments of opening the sinus from the nose it must be said that the skulls which have been shown here are normal and the arrangement of the sinuses is normal. The most stubborn cases, however, are those where the arrangement of the sinuses is abnormal. In order to illustrate this point allow me to remind you of the young woman I showed here a year ago. She had to be operated upon her left frontal sinus. The right sinus extended over both sides and the left one was only a small slit containing ill-smelling pus, in the depth of the orbit, where no intranasal treatment could reach it. All these cavities are lined with mucous membrane, which is at the same time the periosteum. You rasp this away and lay bare the bone. What happens? Granulations will form which will produce pus and necrosis, thus causing the very condition you wish to overcome. I am very careful in using the curette in any of these cavities. It is a different matter to break away some parts with a forceps than to enter a bleeding cavity with a curette or rasp. I would hesitate to do so. It is very easy to injure or scrape away this thin mucous membrane, but what are you going to put in place of it?

Dr. R. H. Good:—Dr. Corwin wondered whether the rasp enters the frontal sinus. I think he will find that it does. Dr. Ballenger is right in criticising the instrument, because the rasp I showed is not a very good one. Better ones are now being made. In regard to the dura, exposing it is not dangerous, but if you perforate it meningitis will follow nearly every time, unless you get a large opening and get good drainage. I saw a case in Vienna where there was an opening as large as a dime into the dura. The patient developed meningitis and died. Keep away from the internal plate of the frontal sinus. My method does not touch that plate at all. I do not do a radical operation until after I have tried all other methods and failed.

The cribriform plate is not in the field of my operation. The chisel is external to its passing at a tangent to the orbital wall. The only thing you can damage is the lamina papyracea or the lacrimal bone, and that can be protected by the assistant. I am sure that in each of my four cases Killian would have done his radical operation. All the operations I saw Killian do in his clinic were at least secondary, failures every one of them.

Dr. L. Ostrom exhibited an antrum forceps, and Dr. F. E. Brawley exhibited an irrigation apparatus for the nasal accessory sinuses.

Adjourned.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Regular Meeting, Dec. 9, 1907.

Dr. C. G. Darling presented a patient whose eye had been inflamed for a week and a half and previous to that vision had been blurred for a year or more. There was no itching and symptoms were no worse in the summer than in the winter. There was a slight discharge and the lids stuck together in the morning, but these symptoms are now absent. Two smears were made but no eosinophiles were found. A smear made from a small ulcer on the conjunctiva was negative. A tuberculin test was not made. The mucous membrane was normal microscopically.

TRAUMATIC IRIDEREMIA.

Dr. Thomas Faith reported three cases, which demonstrated that the diagnosis can not usually be made at once, because of the blood in the anterior part of the eye, and that there is usually quite pronounced hemorrhage into the interior of the eye. The increase of intraocular tension which is very likely to appear in a few days after the accident may be explained by the coming in contact with the cornea of the remnants of the root of the iris, thus shutting off drainage through the sinus angle. It is not improbable, however, that the hemorrhage is a factor in the production of the tension. Eserin is indicated and has a favorable influence on the tension in some cases. Atropin is positively contraindicated.

DISCUSSION.

Dr. H. B. Young said that the result following the use of atropin in Dr. Faith's cases bears out the usual findings.

Dr. W. A. Mann referred to a case he presented to the society several years ago, which resembled Dr. Faith's cases, but proved to be retroflexion of the iris following trauma. He could not follow the case long enough to determine whether the iris came back into place. The tension was high.

Dr. Casey A. Wood said that there is a class of cases of irideremia, of which he had seen two specimens, that is, entire evulsion of the iris following an attempt to do an iridectomy. The iris was torn away from its attachment. In one case, a case of atactic glaucoma, removal of the iris entirely cured the glaucoma, and if there is anything in the theory, he said, that glaucoma is caused by the iris forcing itself against the sclero-iridic angle, this case was an illustration of it. The effect of eserin in such cases he thought emphasizes the fact that eserin does not always act in glaucoma, by pulling the mass of iris away from the angle, as there was no iris to drag away from the angle.

Dr. Faith stated that he had hoped some one would explain the action of eserin in these cases. In tw oof his cases it immediately reduced the tension. Another point of interest in these cases was the pronounced excavation of the optic nerve, that is, in two cases, while in the third, in which the tension was as great as in the other two cases, there was no excavation at all. He interpreted this to mean that the amount of excavation depends entirely on the kind of optic disc present originally.

TUMOR OF CHORIOID.

Dr. Charles P. Small reported the case of a woman who received a blow on the eye. Severe pain followed, lasting for three days, but the appearance of the eye was unchanged. One week later the pain returned and became very severe. A foreign body in the globe was suspected, but the skiagraph was negative. The pain ceased almost suddenly after the use of dionin, and never returned to give her much annoyance. Tension was lowered. The lids were swollen and there was a discolored spot on the conjunctiva. Vision was destroyed. The eye was enucleated and a microscopic examination of the tumor showed it to be a metastatic hypernephroma.

DISCUSSION.

Dr. Casey A. Wood thought that apart from the unusual pigmentation present in the tumor it suggested that it might be a necrotic area, a cholesterin deposit which had broken down. He had never seen anything resembling in appearance the sections of this tumor, and believed it to be another example of undiagnosed intraocular tumor. He agreed with Dr. Pusey that all useless, blind and painful eyes should be removed, and referred to Dr. Small's case as supporting this statement. There are, he said, many cases of intraocular tumor that are impossible of diagnosis and a large per cent. in which diagnosis is very difficult.

Dr. Carlton, who made the microscopic examination of the tumor, stated that hypernephroma is a rather rare tumor. It may or may not be malignant. It is adrenal in structure and is believed to originate from an embryonic remnant either

in the kidney or occasionally attached to the kidney, either within or without the capsule. The secondary tumors are peculiar in that they are discovered accidentally. In one case reported there was a metastatic tumor in the humerus which caused a fracture of that bone when the individual lifted a stove lid. The arm was removed and no recurrence took place. In another case the secondary tumor was removed; there was a recurrence and then none for two years. In Dr. Small's case it was impossible to diagnosticate the presence of a primary tumor, but the intraocular tumor did not resemble any other variety of tumor and contained cells identical with those seen in hypernephroma, that is, endothelial in character, and, further, inasmuch as there is not normally endothelium in the eye, it was safe to assume that the tumor was a metastatic hypernephroma. Some of the cells in the tumor are pigmented, but the cells of the cortex of the adrenal are normally pigmented. The pigmentation might also be due to the fact that the tumor was situated in the pigmented organ, and by pressure atrophy melanotic granules were scattered in the stroma of the tumor, and were taken up by the cells. If the tumor is not a metastatic hynernephroma, Dr. Carlton thought that in all probability it would have to be called an endothelioma, taking its origin from some of the vessels in the chorioid.

Dr. Small called attention to another interesting feature, namely, that Bowman's membrane was intact, so that a foreign body could not have penetrated the cornea.

EXHIBITION OF SPECIMENS.

An exhibition of specimens was made by Dr. Henry Gradle, as follows:

1. Complete enucleation of an eye, with the unexpected recovery of a foreign body in it. The patient, a young woman, 29 years old, was injured by a nail when 10 years old. The eye was sore for a few weeks, and then had no further trouble except that she was blind in that eye. During June, 1907, there was pain for the first time and an inflammatory reaction. There was no doubt about the eye being blind; the lens was cataractous, and there was tenderness indicative of cyclitis. It was impossible to quiet the eye until after the use of sodium salicylate, atropin and dionin having failed. A slight ptosis persisted. Last fall the inflammatory reaction recurred again, and when the conditions would not subside the eye was enucleated. A bit of nail was found firmly embedded in the optic nerve-head. It was not fully exposed, but the magnet demonstrated its presence. The iris is completely adherent to the lens; the lens is cataractous and the chorioid is entirely bleached. There is a hole in the iris through which the foreign body evidently entered. The interesting point is that the eye tolerated the foreign body for nineteen years.

2. A child, apparently in good health, suffered from inflammation of one eye during the eighth month, without known cause. That eye never became quiet. In the course of a year it shrunk until now it is a perfectly quiet atrophic stump with opaque cornea, without tenderness. The other eye became involved soon afterward. Dr. Gradle saw the child first in April, 1907, when it was 28 months old. In the second eye there was a typical high-grade iridocyclitis, beginning to subside. The iris was tied down, there was moderate irritation, with no evidence of perception. There was no reason to suspect anything except iridocyclitis, possibly tubercular in origin. The eye was normal in size. Atropin was prescribed. During the summer the eye had enlarged, and had given the child discomfort. A raw, granulating, bleeding surface protruded from the lens, evidently causing the child much distress. The eye was enucleated. The tumor, which was present, had destroyed the greater part of the cornea, therefore the enucleation was made complete. The wound healed well and there was no reaction. On cutting through the tumor it was found that there was nothing left of the eye except the sclera and the periphery of the cornea. The rest of the contents of the eye had been changed into a mass which in the rear of the eyeball looked like a glioma, but in the front was a fungus-like, granulating, bleeding tissue, permeated by hemorrhages, and

between the yellowish white gliomatous masses and the fungous masses there was a large caseated spot. The microscope showed a glioma with hemorrhage into the anterior part of the tumor.

3. Young man, with high degree of hyperopia and convergent strabismus, which was corrected by the use of glasses. The greater hyperopic eye showed vision of about 1/5; in 1900 the boy was injured by a brick. The glass of his spectacles cut his eye, causing a small wound at the junction of the cornea and sclera. The iris seemed to protrude subconjunctivally. He attempted after forty-eight hours to snip it off, but the forceps grasped nothing. The wound healed kindly and there was no trouble until this summer, when the eye began to pain and it was tender to touch. In October he found a cyst of the iris. The iris had prolapsed into the wound at the time, but did not protrude. There was simply adherence of the iris to the edge of the wound, and the lower nasal edge of this incomplete coloboma had become changed into a cyst. Atropin gave relief for the time being, but an iridectomy had to be done. It proved to be very difficult, but was finally excised. Evidently the cyst had adhered to the cornea, because after the wound had healed there was at the lower part of the cornea, where the cyst had been, a slight vascularity and grayness. Healing was uneventful, and sight was as good as before. The eye was perfectly quiet. A few years ago Dr. Gradle operated on a similar case with similar fortunate results. It was also a traumatic case, with entrance of the iris into the wound. The cyst in that case was of the size of a small pea, and was pressed against the cornea, causing cloudiness and reducing sight to 1/10. Iridectomy in that case was done easily, and a month afterward sight was nearly 20/30. The cyst was cut out in a single mass.

USE OF ATROPIN IN SYMPATHETIC OPHTHALMIA.

Dr. H. B. Young, Burlington, Iowa, reported a case of a man with one eye enucleated and the second eye involved. The origin of the trouble was a gonorrheal ophthalmia. The one eye showed much swelling of the cornea, and in the other there was a small perforation, with a large corneal staphyloma. A puncture was suggested, but refused. The attending physician did puncture it eventually, and now tension is plus and the incarcerated portion of iris is protruding quite markedly. This is the ninth week of treatment. A 2 per cent. atropin solution is being used; the patient has been thoroughly mercurialized, but the increase in tension is becoming more marked. The question is, How much has the atropin to do with it? How much is due to the atropin when the iris is tied up in the corneal cicatrix? Will it make more trouble to use atropin than to omit it? The pupillary space is filled up. Has the atropin aggravated the increase in tension? There is very little pain. Is a paracentesis advisable with sclerotomy? Is there any hope of saving some vision in the affected eye?

DISCUSSION.

Dr. Gradle said that in his case the iris was adherent. He recalled two other cases of blind eyes, with cataractous lens, adherent iris, and recurrent attacks of iritis. Unmistakable benefit resulted from the use of atropin. He suggested that there probably was a little leakage between the anterior and posterior chambers. In one of the cases the stoppage of the atropin was followed by a ciliary injection, discomfort, and on its resumption the symptoms diminished in severity. In one case of severe iritis the tension was distinctly plus, but Dr. Gradle did not stop the use of the atropin, and the case terminated in recovery.

Dr. Casey A. Wood did not believe that it would make much difference whether atropin was used or not, because of the changes that had taken place in the interior of the eye. He did not believe that in every instance the exact modus curendi of atropin could be determined any more than in the case of eserin. He did not believe that atropin always causes the tension to rise, nor that eserin is always indicated in plus tension, because conditions vary. The local sedative effect of atropin can not be questioned, and for that reason he thought that Dr. Young ought to continue the use of atropin.

Dr. George F. Suker referred to two cases in which he used powdered dionin without getting any reaction. It had not been used before in either case. He also used it in solution, with the same result.

MORTIMER FRANK, Secretary.

CHICAGO SURGICAL SOCIETY.

A regular meeting was held Feb. 7, 1908, with the president, Dr. A. J. Ochsner, in the chair.

ROTATION OF GREAT OMENTUM.

Dr. William Fuller reported a case of intra-abdominal rotation of the great omentum unassociated with hernia.

DISCUSSION.

Dr. D. A. K. Steele said that some eight years ago he had a case of twisted great omentum in which he made an error in diagnosis similar to the one cited by Dr. Fuller. The patient was a rather fat, middle-aged policeman, who was admitted to the Mercy Hospital, having been sent there by him for an operation for a supposed recurrent appendicitis. At the operation he found that the abdomen contained a good deal of bloody fluid. The omentum was enormously enlarged. It was twisted and convoluted, and it was adherent on the right side, and the veins particularly were greatly dilated. The whole omentum had a bluish appearance, was greatly hypertrophied and seemed very much like bunches of grapes, or it had an hydatidiform appearance. He resected the omentum, mopped out the abdomen, closed it up, and in two or three days the patient died. That was the only case he has seen, and in that case he believes the twisted omentum was due to an old hernia on the right side to which the attachment had been made. The appendix was somewhat pathologic, but the real pathology was in the twisted omentum in this case.

Dr. John L. Yates, of Milwaukee, Wis., said a case occurred at the Augustana Hospital about two years ago, the details of which are: The patient on admission gave a typical history of subacute cholecystitis, indicating the probable existence of stones. There was an elongated mass extending downward to the right side of the costal margin which on palpation and percussion simulated a Riedel's lobe, due to a distended gall bladder. At the operation by Dr. A. J. Ochsner the liver was found to be entirely normal, also the gall bladder. There was no attachment distal to this mass, and the mass itself did not show any distinct indication at that time of torsion. It was very edematous and showed apparently on microscopic examination evidences of what might be called omeritis, acute and subacute. There was no evidence of extension of this inflammation from the abdominal viscera to the omentum, so the probable explanation of this lesion was that torsion had taken place for some unknown cause, giving rise to recurrent edema. The torsion itself had disappeared, but the edema had persisted, and the resulting inflammation provoked an exudate which, in turn, caused crimping up of the omentum, forming a solid, hard mass in which there was no sign of suppuration and which was negative on microscopic examination as to bacteria. The patient made an uneventful recovery.

Dr. Alexander Hugh Ferguson reported a case of torsion of the great omentum. The patient was a woman, 42 years of age, the mother of six children, and weighed over 235 pounds. She was nearly six feet in height. The history she presented was that of a chronic condition referable to the stomach and bowels, and had been treated by a number of specialists and internists for stomach trouble and chronic diarrhea. The chronic diarrhea would last sometimes as long as a couple of months and then subside. She would be constipated for a short time, improve for two or three weeks, and then the diarrhea would come on again. Symptoms of partial obstruction of the bowels came on gradually, but there was no stercoraceous vomiting at any time. There was never any persistent vomiting. In fact, vomiting was a minor element in the case. Nausea was rather a constant symptom. The pelvic organs were normal. There was no pain, particularly in the region of the appendix. There was no intra-abdominal tension except at

times, and during these times she would have considerable pain. Exacerbations of pain came on rather severely and lasted for two or three days. There was more or less pain or uneasiness in the abdominal cavity all the time, particularly for the last year. The patient had indicanuria; indican was in the urine constantly. He could find no tumor. The blood was normal. The abdomen was so thick and the woman was so stout and fleshy that he could palpate nothing but a fat abdominal wall. There was no hernia to be seen or felt. She had no attacks of inflammation in the abdomen. He opened the abdomen as an exploratory incision, having told her that the diagnosis lay between torsion of the omentum and some obscure form of internal hernia. Upon opening the abdomen in the median line, the first thing that presented itself was the blue small intestine. No omentum was to be seen or felt over the anterior surface of the abdominal contents. Upon passing his hand into the pelvis, he felt the omentum behind the bowels. He followed it up in the direction of the appendix; it was not adherent to anything, but he found that it had pulled itself up over the junction of the small and large bowel. It was evident that the omentum had passed completely around via the junction of the duodenum and jejunum and formed a large rope-like mass behind the small bowel. All he had to do was to untwist it and unfold it over to its normal position and there leave it. The woman has been cured of her stomach trouble and of her gastrointestinal disturbances. This case disproves the assertion made in medical literature and also the statement made by Dr. Fuller, that, in order to have rotation of the omentum, the other end must be fixed at some point.

Dr. Fuller, in closing the discussion, said that the case related by Dr. Ferguson, in which there were no adhesions disclosed by the operation, does not prove that in the beginning of the torsion there were no adhesions, for these may in any case be twisted off when the omentum has made a certain number of revolutions. He thinks Dr. Ferguson's case belongs to the class in which the position of the omentum is merely an anomalous one as described by Dickinson and by Eccles.

HEMATURIA.*

CHARLES J. DRUECK, M.D., CHICAGO.

Hematuria, or the presence of blood corpuscles in the urine, is always pathological and appears in a number of different conditions. In fact, the blood may come from any part of the urinary tract, and, while the determination of its source is sometimes easy, at other times it is difficult, if not impossible. Frequently the physician is pinned down by the patient or his friends for a definite diagnosis, and where this differs from what has been previously offered by some other medical man it disturbs the confidence of the patient. As an example of this I shall cite a case later of a child who had had hematuria for about a year and which had been said to be due to kidney disease. When I diagnosed cancer of the kidney, the family were very skeptical, and it was only after the mother had felt the tumor that she believed in my judgment.

The character of the blood in the urine and its time of appearance, that is, whether clotted or diffused, profuse or scant, and its relation to the act of urination, differs and indicates somewhat the part of the urinary tract involved. The chemical reaction of the urine also affects the color, as acid urine is dark-red, while alkaline urine containing the same amount of blood will be bright in color. Of course, if the blood is small in amount, it may not materially influence the color of the urine. The albumin test will, however, show even very small traces of blood.

Guyon (White and Martin) divides the causes of hematuria into trauma, congestion, inflammation, organic disease and foreign bodies, and sometimes the pathology seems hardly sufficient to create the disturbance in the case at hand. The amount of blood in the urine is variable. If slight it may not show macroscopically, but if profuse the urine appears bloody. The microscope is always

* Read at the Southern District Society, June 18, 1908.

necessary to verify the clinical picture. If the urine contains pus as well as blood, the blood will be found in the sediment, leaving the liquid part of the urine uncolored.

The more dilute the urine is the less rapidly will the blood clot, but the more rapidly will it dissolve and diffuse. Blood clots in the urine have little diagnostic significance, except the long, thin, cylindrical. These resemble earth worms in appearance and are formed in the ureter. They indicate the source of blood as being in or above the ureter. Short cylindrical clots have no significance. The color of the clots varies from yellowish red to thick heavy dark red. The fibrin clots closely resemble broken pieces of cancer tissue.

I wish here to enumerate a few conditions in which hematuria occurs, and, for the sake of clearness, we will divide these sources of hemorrhage into (1) kidney (including the ureter), (2) bladder, (3) urethra. We will enumerate the causes of hematuria in each division and see what differential picture we can draw.

KIDNEY.

It has been said that renal hemorrhage is more protracted than the bleeding from the bladder or urethra, but that is very uncertain. In all diseases of the urinary tract the periods of bleeding are more frequent and intense as the diseases advance.

(a) Chronic diffuse inflammation of the kidney has no hemorrhage.

(b) In the following the hemorrhage is slight and subsides as the other symptoms are relieved: Acute parenchymatous nephritis. (This is frequently the result of accompaniment of acute infectious diseases, as variola or scarlet fever); amyloid degeneration, abscess, embolism, hydatids and purpura hemorrhagica and phlebitis (uterine or crural).

(c) In the following conditions the hemorrhage is profuse and obstinate: Cystic disease of the kidney, chronic interstitial nephritis (here the hemorrhage frequently alternates with hemorrhage from mucous membranes), malignant disease (hemorrhage is here brought on by slight or no cause, is made worse by exercise, but is not much relieved by rest). Guyon (White and Martin) says that the hemorrhage of kidney tumor is intermittent, it will stop and then suddenly reappear, and these changes occur often. Sometimes the ureter is blocked with a clot and the urine is clear for a few hours, and then the clot is suddenly released and the hematuria appears. The presence of renal casts shows positively that the blood is from the kidney. Tuberculosis of the kidney shows an intermittent hematuria which is brought on by exertion, but the urine contains pus and débris, which remain in solution and do not tend to settle out. Pain is also present, but is variable, sometimes amounting to a true renal colic. The hematuria of renal calculus is excited by the most trivial muscular strain or violence, such as under normal conditions would not cause any disturbance. The bleeding is promptly relieved by rest in bed. There is always more or less pain and renal colic which is reflected from the lumbar region in various directions. The pain of renal colic is quickly relieved by rest in bed, but not the pain of tuberculosis or tumor.

(d) Drugs may also cause hematuria, as turpentine, carbolic acid, cantharides and mercury. It must also be remembered that senna and rhubarb cause the same reddish-brown color of urine without causing hemorrhage.

(e) Trauma.—In severe injuries and malignant disease the blood may be bright red and the hematuria may appear to be terminal. In trauma the location and character of the injury will determine somewhat the source of the blood, i. e., a kick in the back followed by hematuria would suggest a contused or lacerated kidney, while a blow on the abdomen and particularly in the hypogastric region would indicate a ruptured bladder.

A heavy dragging sensation due to the renal congestion sometimes precedes hemorrhage from these parts or an attack of renal colic may appear. These pains do not occur with hemorrhage from the bladder or urethra.

BLADDER.

Associated with bladder lesions that cause hemorrhage we usually find cystitis and alkaline urine. In these conditions the muco-pus and phosphates so cloud the urine as to alter its appearance and prevent the easy detection of blood. When the urine is ammoniacal the hemoglobin is frequently dissolved out of the corpuscles and the cells are then called blood shadows. These are sometimes confusing when found in the urine. They appear as small bodies or rings the size of red cells and have no nucleus.

(a) The hematuria of vesical calculus is terminal and the blood is fresh. The hemorrhage is moderate, unless prostatic disease complicates. (b) Prostatocystitis and (c) vesical tuberculosis also have slight terminal hematuria, and in this symptom closely resemble stone. (d) Polypi of the bladder and (e) fibrous tumors usually show slight or moderate hemorrhage, but (f) villous growths bleed profusely and the blood forms a reddish-brown sediment. A vesical tumor, so long as it is not near the bladder neck, may not show any other symptoms except hemorrhage and is not palpable in its early stage, and thus the hemorrhage is frequently considered renal. Of course, if renal colic or some other localizing symptoms appears, that will determine the course of the bleeding. (g) Varicose veins of the neck of the bladder sometimes rupture and cause quite a sharp, free hemorrhage.

A cystoscopic examination must be made in all doubtful cases of hematuria. When the hemorrhage comes from the bladder we have, besides the visible blood, frequent micturition and pain in the inflammatory, obstructive or traumatic cases. A bimanual examination will frequently detect changes in the bladder wall or prostate or the presence of a tumor. Vesical tumors ultimately necessitate catheterization, and then cystitis is soon added to the clinical picture. When the blood is diffused throughout all of the urine and the last urine contains a large quantity of pure bright blood, it is probably vesical or prostate bleeding.

URETHRA.

Hemorrhage from the urethra usually precedes the flow of urine and also occurs between the acts of urination, but if it does not it may be squeezed out by stroking the urethra.

(a) Acute gonorrhea, a mild hemorrhage may occur in any case.

(b) Acute posterior urethritis presents only terminal hematuria.

(c) Chancre within the urethra sometimes causes hemorrhage that may be obstinate and recurrent.

(d) Neoplasms and injuries to the urethra sometimes cause hemorrhage that may be alarming.

In any case of hematuria the signs and symptoms other than those of the urine itself must be considered, because the trouble may be outside of the urinary system. Blood appearing at the beginning of urination (initial hematuria), the later urine being clear, must come from the urethra. If the bleeding is from the prostatic urethra, it may flow into the bladder, and in this condition the last urine is often almost pure blood (terminal hematuria).

TREATMENT.

The great variety of causes of hematuria divide themselves into those that must be treated therapeutically and those that can be arrested mechanically. During the bleeding, rest in bed, liquid diet of milk, buttermilk and diluting drinks to lessen the tendency to coagulation and a soft free stool. Drugs by mouth are of doubtful value. Guyon gives turpentine, three drops every hour for 6 or 8 doses. Ergot in full doses is also recommended; oil of brigeron and gallic acid have also been used. And of these may be of value in moderate and persistent hemorrhage. In sudden profuse bleeding that threatens to exsanguinate the patient a full dose of morphin to quiet the restlessness and anxiety. Next empty the bladder with a catheter or suction pump as needed and then irrigate with hot antiseptic solution of silver nitrate, 1:2000, or hydrastis, one ounce to the pint. After this the catheter should be held in the bladder until the bleeding ceases.

If this does not control the bleeding a perineal cystotomy should be performed. All clots removed and a drainage tube inserted. This must be performed under the most rigid asepsis, because the bladder is particularly liable to infection after the hemorrhage and particularly so in cases of tuberculosis or neoplasms. Prostatic hemorrhage is often relieved by opium suppositories in the rectum and by suprapubic compresses.

I wish here to cite a couple of cases that may be of interest at this time.

CASE 1.—C. H., a boy, 12 years old. Four years ago he was vaccinated, and from that his parents date his trouble. About two years ago he suffered from hematuria, of slight amounts, every couple of days for about a month. During this time he passed under the care of several physicians and was finally relieved. During this time, the parents say, he appeared otherwise healthy. For the next year he had occasional hematuria, but most of the time the urine was normal. There is no record of the urine at this time, except the parents' statement. For about a year now blood has appeared constantly in the urine and has increased in amount until recently it was nearly always present and in large amounts. The urine at best is heavy and smoky-brown in color (and at times seems to be largely blood). As his mother says, "it is pure blood that runs from him." During the first year of this boy's illness no positive diagnosis could be made. About six months ago a tumor of the right kidney became palpable and continued to enlarge until it nearly filled the right side of the abdomen. The boy suffers very little pain, only a dragging sensation in the region of the kidney, but has grown waxy and anemic. The features are distorted by the anasarca. The boy cut his hand about three months ago while playing with a knife and, although the cut was one and one-half inches long and one-half inch deep, it bled no more than a scratch. Shortly after this incident the boy consulted another physician, and I saw no more of him until a few days ago, when I found him dying. After his death we did a partial post and found the right kidney about the size of a cocoanut and somewhat the same shape. It was soft and boggy, quite friable, and easily crumbled under the fingers. The pelvis of the kidney was filled with a granulating mass, but there was no blood or blood clots. I was surprised at not finding clots or free blood in the pelvis of the kidney and very little on section of the growth. The liver was small and did not present any apparent secondary growths. All of the abdominal organs were very pale. Death was really due to anemia. No post was made of the chest, because the parents objected. I was not permitted to take out the tumor, but section of a small piece showed it to be a sarcoma.

During the time this boy was under my care I went through the whole list of drugs supposed to be good for hematuria, but none had any effect on him.

CASE 2.—Mrs. A. had been a nurse. Following the birth of a baby she was troubled with paresis of the neck of the bladder, which persisted after she was up and about, and she then insisted on catheterizing herself. Later she developed a sharp cystitis, with the formation of stone. Every couple of days she voided bits of calcium phosphate, and as these pieces would break off there would be considerable free hemorrhage. Sometimes this hematuria would accompany only one urination and again be quite free. In this way it was intermittent but persistent and blood corpuscles could be found in the urine at all times. Of course, it had a gradual exsanguinating effect.

I made a vesico-vaginal fistula and found the mucous membrane sheeted over with this deposit, and under the deposit the surface was ulcerated and granulating. Under local treatment and drainage she soon recovered.

CASE 3.—Mr. L. H. About three years ago I operated upon a man, 37 years old, for hemorrhoids. They were internal and quite extensive and I had to remove considerable mucous membrane. The result was very satisfactory as far as the operation was concerned, and the man has had no other rectal inconvenience since. When the bowels moved first after the operation (on the fourth day) he had quite a terminal hematuria, and ever since then whenever the bowels are constipated and the movements accompanied with straining there is danger of this hematuria.

There are no other symptoms of anything. The hematuria is always terminal and persists for the next few urinations. Sometimes it is quite sharp. It may recur in a couple of days or he may go months without a sign. During the interval there frequently is no blood in the urine. He frequently passes three or four months without any trouble and once he went eight months. The trouble is always brought on by constipation. He is caused so little trouble that he objects to a cystoscopic examinaton and I have never made one. I believe this is a case of varicosed veins about the neck of the bladder or the prostatic urethra due to my operation upon the middle and superior hemorrhoidal veins when I removed the piles.

599 East Forty-sixth Street.

THE CLINICAL HISTORY AND DIAGNOSIS OF INFLUENZA IN ADULTS.*

GEORGE W. POST, M.D., CHICAGO.

The grippe is an infection, and as such the micro-organisms must gain entrance to the body either through the air passages or through the gastro-intestinal canal or through breaks in the skin, and these modes of entrance furnish the key to the many-sided symptomatology of the disease. I do not know of many observations concerning entrance through abrasion of the skin, but in one case I am positive that the infection invaded the patient through lacerations occurring during childbirth. Invasion through the stomach is not so very common, and in the majority of cases invasion takes place through the air passages. The period of incubation is from one to four days, usually two or three. The mode of onset varies greatly. The first symptoms are frequently those of acute, simple fever without localization, characterized by two or three degrees of temperature and chilliness and a little weariness or inability to perform one's usual work. The patient feels as if he had lead in his heels, but in forty-eight hours or so these symptoms disappear. In the more severe onsets the fever may rise to 103 or 104 with a sharp chill, rapid pulse, an erythematous rash covering the whole body, and great prostration, mental and physical, but without any special localization, and clearing up in a week. Sometimes the person falls to the floor, as the very first noticeable symptom, and is taken up in an unconscious condition. This is most likely to happen to the very old. The occurrence of simple fever is very common, but when mild is quite often overlooked, although when the attention of an intelligent patient is drawn to it he will frequently remember such an incidence. The micro-organism is now safely established within the fluids of the body, where it will remain for a month or more, and it only remains for some exposure to cold and wet, or the chilling of the body when in perspiration, or some extra fatigue, to set up one or more of the many inflammations of grip. These are almost innumerable. The gastrointestinal form of the disease varies much in severity, from a little colic and diarrhea to a condition closely resembling cholera. There is usually a little nausea, a good deal of abdominal pain and from three to a dozen loose stools. The duration is from two to five days.

The most common inflammatory condition is that of the upper air passages, from which the disease has received the name influenza. It is commonly characterized by an acute rhinitis with abundant muco-purulent discharge, which is often bloody. Inflammation of the mucous membranes tends to spread rapidly in every direction, frequently to the frontal sinus, less often to the antrum and other accessory sinuses, usually proceeding to the nasopharynx, out to the middle ear and mastoid cells, and down through the larynx, trachea and bronchial tubes to the air vesicles themselves. The rhinitis and nasopharyngitis usually is accompanied by the popular picture of grippe. There is severe headache and pain in the eyeballs, which are usually present in inflammation of the upper pharynx. There is fever and acceleration of pulse and breathing. The ratio between pulse and respiration is about normal. Prostration, both mental and

*Read before the West Side Branch of Chicago Medical Society.

physical, is out of proportion to the constitutional symptoms. There are aches and pains, headache and bones ache and backache and soreness and sneezing and snuffling and coughing and groaning and curses. Grippe sufferers are apt to be capricious and short of temper. The duration of an uncomplicated case of this kind is about a week, but there are few uncomplicated cases, and the disease, by extension, brings into prominence other regions. Suppuration of the frontal sinus, inflammation of the middle ear with its concomitants, pharyngitis, laryngitis, tracheitis, bronchitis, asthma, bronchopneumonia, pneumonia, pulmonary abscess, pleurisy and empyema, are likely to follow in all sorts of combinations and orders of sequence.

The pneumonia of grippe deserves special mention. It differs from pneumococcus pneumonia in its great tendency to spread to and invade both lungs at the same time, and it is characterized by peculiar sharp, sticky râles, which are quite characteristic. Moreover, leucocytosis, which is high in pneumococcus pneumonia, is usually low in influenza.

Inflammatory conditions are also common in all parts of the nervous system from herpes labialis and herpes zoster through the list of peripheral neurites, omodynia, pleurodynia, lumbago, sciatica, etc., to meningitis, encephalitis and cerebral abscess. The innervation of the heart is frequently affected, as also is the endocardium, the pericardium and the myocardium. Acute nephritis is very common.

The convalescence from influenza is slow and treacherous. Mental and physical weakness are the rule, and complications are likely to arise at any time. Depression of spirits, melancholia, irregularity of the heart's action, and tuberculosis frequently follow.

In fact, the whole clinical picture of influenza is that of an infection, involving the entire organism, and the rational treatment should, if possible, be directed along the line of constitutional antisepsis. Diagnosis during an epidemic is not very difficult. Bacteriologic examinations should be made when possible. A note of warning should be uttered against the haphazard method of pronouncing everything grippe in which there is fever, or going to the other extreme, of denying the existence of influenza for fear of yielding to a popular fad. The method of diagnosis by exclusion, the diagnosing as grippe all these obscure conditions, which do not seem clearly to belong in any other category, is also to be deprecated. Such careless and unfounded conclusions are not worthy of the well-balanced physician.

JASPER COUNTY.

The Jasper County Medical Society met at Newton in the G. A. R. hall on Friday, July 3. Quite a number of the members of the Crawford County Society were guests, including Drs. T. N. Rafferty, H. N. Rafferty, Frank Dunham, Price and Low. Papers were read by the visitors and freely discussed by members of both societies. The Jasper County Society tendered the visiting physicians a banquet at the New American hotel. We believe that both County Societies derived marked benefit from this visit and we would suggest that other societies imitate our example.

JAMES R. PRESTLY, *Sec.*

JO DAVIES COUNTY.

The Jo Davies County Medical Society was scheduled to meet in Galena, July 9, but by special invitation from the Galena division of entertainment was invited to join a stag party and sail down the river to Camp 19, a beautiful spot on an island in the Father of Waters. Twenty-four physicians availed themselves of the opportunity. Dinner was awaiting the arrival of the party and everything necessary for the inner man was supplied. "New Life" was in abundance. Immediately after dinner the vice president called the meeting to order and the following responded to their names: Drs. Kreider, Renwick, Staples, Tyrrell, W. A. Smith,

Nadig, Seidenburg, Clark, Kaa, E. R. Lewis, Melhop, Barber, Guim, Hayden, G. D. Smith, Stafford, Bench, Buckman, Godfrey, with Miller of Galena, Hillard of Warren, and Langworthy, Linehan and Bigelow of Dubuque. Applications were received from the following physicians: W. H. Miller of Galena, S. H. Hillard of Warren, H. Linehan and L. S. Bigelow of Dubuque, Ia. The program of the day was opened with a paper by Frank Seidenburg on "Acute Gastric and Intestinal Indigestion." Dr. J. C. Renwick read a paper on "Acute Ileocolitis." In the absence of Dr. Boots, Dr. Tyrrell read his paper on "Acute Gastroenteric Infection." The papers were all well prepared and received, and the society voted to dispense with the discussion and spend the rest of the time socially. Stockton was selected as the next place of meeting for October 8.

D. G. SMITH, *Sec.*

LIVINGSTON COUNTY.

CESAREAN SECTION, LATE IN LABOR, WITH REPORT OF TWO CASES.*

J. P. WEBSTER, M.D., CHICAGO.

When the delivery of the child by the natural route is impossible, it may be removed by incising the abdomen and the uterus. Ambroise Paré condemned the ante-mortem operation because of the frightful mortality. The cause of death was hemorrhage or sepsis. Hemorrhage, because no stitches were taken. They supposing the alternate contractions of the uterine muscle would tear out the stitches. Porro in 1870 amputated the uterus, brought the stump up to the abdominal wall and included it in the abdominal stitches. This was a distinct advance, and reduced the mortality one-half, by preventing leakage into the abdominal cavity, and resulting peritonitis.

The next great advance in technique was Müller's idea of making a long incision, and lifting the womb out onto the abdomen and surrounding it with towels before incising it. This prevented soiling the peritoneal cavity. Müller advocated using the elastic ligature around the tubes and broad ligaments to prevent hemorrhage. It remained for Sänger of Leipsic, in 1882, to perfect the technique of Cesarean section, and radically improve the mortality. His success may be attributed to three causes: First, a strict antiseptic technique. Second, a complete closure of the uterine wound, by multiple suture. Third, the deliberate selection of the operation before the beginning of labor, and its performance before the patient's strength had been exhausted, or her passage infected by repeated examinations, and fruitless attempts to deliver by forceps or version.

The Porro operation is restricted to very narrow limits. The Sänger method is of the widest application. The Porro operation should be given the preference, if the uterus is infected; celio-hysterectomy, if the vagina is obstructed from any cause that can not be removed; malignant disease of the cervix; in osteomalacia; complete inertia; where rupture of the uterus has taken place, into the broad ligament of either side. Relative indications are not easily formulated and each operator must decide according to conditions found to exist. A conjugate diameter of two and one-half to three and one-fourth inches, and moderate obstructions by tumors of the pelvis, or outlet, also eclampsia, or placenta prævia, may be classed as relative, as symphyseotomy, version, forceps, or craniotomy may be selected.

The indication is absolute when it is impossible to deliver the child living, dead or mutilated, through the natural canal. Ordinarily we should select the operation that entails the least danger to the woman. Also, when there is a very large child and a small pelvis. In quite a large majority of patients, on whom it is found necessary to perform Cesarean section, the labor has been a protracted one. They have been under an anesthetic for hours, forceps have been applied time and again, or many futile attempts have been made to apply them. The patient is in a poor condition to withstand the added shock of a celiotomy.

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*Presented to the Livingston County Medical Society, at a meeting held in Forest, Nov. 7, 1907.

Infection has been carried by the examining fingers or forceps, into the uterine cavity. Under these conditions, where some degree of infection is probable, we are justified in selecting the Porro operation, as the one giving our patient the best chance for recovery.

This question must be settled at the time of the operation, by the individual operator. The best results follow when we select time and place. Select the time a few days previous to the expected date of labor. Select the place where she can be prepared as carefully as for any abdominal operation, the bowels carefully regulated, all parts disinfected, thoroughly scrubbed with soap and water and all hair removed. The consent of the patient and husband must be first obtained, after explaining the operation and its dangers. Then, as a rule, the consent of the parents must be secured, and of the spiritual adviser as well, as people of a religious belief have very firm convictions on the subject. The patient and husband must decide what is to be done. If they decide in the negative, we must adopt some other radical measure, or withdraw from the case, after another medical adviser is at the bedside of the patient.

The same instruments will be required that are used in an abdominal hysterectomy. Many operators prefer chloroform to ether, as they claim there is less danger of the child being asphyxiated. The incision in the abdomen must be from five to eight inches long. The length of the incision depends on whether the uterus is to be incised within the abdomen, or after it has been lifted out. If left in the abdomen, the incision may be two or three inches shorter, say about five inches. If lifted out, the incision must be about eight inches long. If great care is exercised in packing sponges and towels around the uterus, and covering the cut edges of the abdominal parietes, no infection need be expected.

The best method, whether the uterus is left in the abdomen or lifted out, is to use a sheet of rubber dam with a slit cut in the center, about four inches in length. This sheet of rubber dam can be slipped through the slit. In this way the abdominal cavity is thoroughly protected, as the sheet does not allow anything to come in contact with the peritoneum, or the edges of the wound. A very satisfactory part of the technique is to close the upper angle of the abdominal incision with two or three silkworm gut, mass stitches, before the uterus is incised, as soon as it is lifted outside of the abdominal cavity.

The so-called new incision of Fritch has but little to commend it, for the child can not always be extracted through the incision, and it is necessary to make a longitudinal cut to complete the delivery, which defeats the object of the transverse incision. The incision in the uterus must not be less than five inches, if less, the uterus is apt to be torn, and the tear does not always continue in the same line as our incision. Ragged tears in the uterus are very troublesome to close, and are apt to slough after closure. We can not always be certain when we incise a uterus, whether we will do a Porro or a Sänger operation. If we make a small incision in the uterus and tear the balance, we add greatly to shock, as dull instruments, or tearing tissue cause shock, as has been demonstrated by Crile. The incision may be made in ten seconds with a knife. It can not be performed in less time by tearing methods.

Cesarean section may be performed in the interest of either mother or child. when a safe delivery can not be accomplished by other well known methods, such as version or forceps. The physician should not decide in a grave case between craniotomy or Cesarean section. He should call in council, lay the case before the patient and friends, and leave the decision to them. In actual practice, our first duty is to the mother. In choosing between Cesarean section and symphysiotomy when the indications are a moderate obstruction within safe limits, or where but very little more space is needed for safe delivery. Then if the operator has had but a limited experience in abdominal surgery, he had better choose symphysiotomy. The mortality is from 7 to 10 per cent. in symphysiotomy. In Cesarean section, 5 to 7 per cent.

Vaginal Cesarean Section. Dührssen Method. Indications are normal size of child and pelvis. Pregnancy at or near term. Malignant growth of the uterus. Obstructing tumor, which renders its delivery safe through the vagina. Stamm

recommends it, when there is an undilatable cervix; when the mother's life is endangered and may be improved, or prolonged by a rapid emptying of the uterus. For example, eclampsia, uremia, myoma of the cervix or carcinoma.

TECHNIQUE.

The anterior and posterior cul-de-sac are dissected up. The bases of the broad ligaments and vessels are clamped or tied off. The cervix is split up on two or four sides, extending above the internal ring. The membranes are then ruptured, the child delivered, placenta extracted, and the hysterectomy completed in the ordinary way.

METHOD OF J. CLARENCE WEBSTER, M.D.

"A circular incision is made through the mucosa covering the vaginal portion of the cervix, close to the fornix, and is extended into each lateral fornix for half an inch, the cervix being pulled downwards with volsella. The bladder is then held up with a retractor and the cervix is divided in the middle line anteriorly and posteriorly, if the case be at or near full term. If it be premature the posterior lip of the cervix need not be divided. The cervical incision is then continued into the lower uterine segment anteriorly as far as necessary, care being taken not to enter the peritoneal cavity. In this way an opening in the uterus may be obtained, 8 to 12 c.m. in length, which allows the passage of the fetus. Bleeding is controlled by forceps. If it is thought advisable, the uterine vessels may easily be secured. Through the incision, the fetus is extracted by version or forceps. The placenta and membranes are then removed and a gauze tampon placed in the uterus. The incisions are then closed with catgut."

The mortalities early in labor, 1.2 per cent., is very gratifying. The mortality when section was performed early in labor is put at 3.8 per cent., and late in labor at 12 per cent. These mortalities are selected from some 300 cases. In the two cases I shall report, the section was performed late in labor, after the patients were exhausted. In both, the pulse rate was high, 120 to 130. The second, 160 when the patient was placed on the table. One author says: "Late section has become thoroughly discredited and is now seldom or never performed by operators of experience in cases which have been under their own care from the start." Late sections must be classified among emergency operations, and must necessarily have a high mortality. "If however, the date of election is the safest time for the performance of the section in cases of the absolute indication, it is of necessity also the safest time for the section when done for the relative indication." The so-called test of labor is our only sure method of settling the question when section is indicated in the absence of extreme deformities of the pelvis, but we should not allow the labor to go on to the complete exhaustion of the patient. In city practice, this rule is quite easy to follow, because of the nearness of hospitals and good obstetric surgeons. In the country it is much more difficult, especially in bad weather, and worse roads, and a good obstetric surgeon not procurable.

My paper does not deal with placenta prævia or eclampsia, but with Cesarean section, late in labor, which then becomes an emergency operation. We must meet the emergency as we would a crushing injury of the leg or a strangulated hernia. Conjugate measurements are now of but little importance. It is now a question of good sense, of good judgment, as to whether this fetal head can be delivered through this maternal pelvis.

The etiology of death, in section early, has been faulty technique and accidental infection. The etiology of death late in labor is from peritonitis and the cause of the infection, repeated examinations and repeated attempts at high forceps delivery, both carrying infection into the uterine cavity. The mortality decreases in proportion as we decide in advance of labor whether a section is indicated or not, and are guided in accordance. We may allow young, vigorous women the full test of labor, when the obstruction is not well defined. Woman who have borne a number of children, whose labors have been prolonged, who have some mechanical obstruction or there is great disproportion between the

fetus and the pelvic outlet, women who escape with their life, as it were, on whom high forceps delivery has been necessary with each labor, who react very slow, are anemic for months. We may think of section in such cases.

I wish to report two cases on whom I performed Cesarean section. One was by the classical Sänger method, and the other by celiohysterectomy. Both recovered.

CASE 1.—I was called to see Mrs. H., Dec. 19, 1900, age 22, found she had regular pains, severe and bearing down in character. The nurse had her prepared when I arrived. I examined her with rubber gloves. I discovered nothing abnormal. The cervix dilated completely, but the head did not descend. We gave her chloroform and applied the forceps easily, but could not bring the head down. The head seemed to rock as if on a pivot. We had now worked faithfully for two hours with the forceps. I placed her in the Englewood Hospital and prepared her for a Cesarean section. It was decided best not to attempt to lift the uterus out of the abdomen, because of the large size of the child, for it would then be necessary to carry the incision well above the umbilicus. I incised the uterus as it lay in the abdomen. I grasped the feet and extracted the child easily. The child was alive and cried lustily.

The placenta was separated and removed. The uterine cavity was packed with hot towels to control the hemorrhage. The incision in the uterus was closed with three rows of stitches, the mucosa was closed with fine silk. The serosa was closed by an inversion stitch of No. 2 chromoform catgut. A slight infection took place where the head of the child touched the abdominal wound, while extracting it. Time of the operation was 45 minutes. The patient made a prompt recovery and left the hospital at the end of three weeks. The abnormality, which prevented the descent of the head, was an exostosis, three-fourths of an inch long, on the promontory of the sacrum.

Jan. 24, 1902, about one year after the operation, at the earnest solicitation of the patient and husband, I opened the abdomen and sealed the tubes close to their uterine attachment, using the electro pressure forceps of Skeene. The electro pressure method with heat, or pressure and heat applied with a thermocautery, or soldering iron, desiccating and sterilizing the tube, was first used by me, Jan. 24, 1902. I have used this method six times. One patient menstruates, five do not. This patient felt that she could not run the risk of again becoming pregnant with the probability of undergoing another section. She made a prompt recovery from this operation also, and has not menstruated since.

CASE 2.—I was called into the country, by a telegram which read: "Come prepared to do section." We drove eight miles farther into the country, arriving about 3 a. m. I found a woman, Mrs. F., aged 32, German, who had been in labor 36 hours. Pulse 130, temperature 96. Drs. Whitmir and Ellingwood had tried in vain to apply forceps. I decided to perform section for the following reasons: First, the patient was rapidly passing into a state of collapse. Second, the head was immovably fixed and the cervix only partly dilated. Third, I feared rupture of the uterus was taking place, which was confirmed at the operation. Fourth, light must be furnished by household kerosene lamps and lanterns, which could be utilized better in an abdominal, than in vaginal operation. Fifth, the anterior uterine wall was so thick, it prevented the descent of the head. Sixth, because of all the above stated reasons, a section offered the best and quickest termination of labor.

Two shelves for the lamps to rest on were made by nailing two short pieces of boards to the top of a window sash; lantern also boasted of a very dull reflector. These furnished us with a very fair light to operate by. One physician and the nurse began the preparation of the patient. While these preparations were in progress, the rest of us improvised an operating table, using a dining room table and a sewing machine. An instrument and dressing table was improvised from a small stand and two leaves from an extension table. The usual thorough aseptic measures for an abdominal section were taken.

The patient was now placed on the table. Examination of the abdomen revealed a scar in the median line, three inches in length. She said: "An operation had been performed for some retrodisplacement the year previous." Conception followed soon after her return home from the hospital. Pregnancy had been normal. She was her own domestic. The patient was given as hasty a preparation as the time and her condition would permit of. The pulse soon arose to 160 and was very feeble. Examination of the abdomen showed a prominent point six inches to the left of the umbilicus. It was very tense and cone-shaped. After she was placed on the table, this firm prominence seemed much softer and I feared a rupture of the uterus had taken place, because of the rapid rise of the pulse and the rapid collapse. The incision began at the umbilicus and ended close to the pubes. Two inches above the pubes, the uterus was found firmly anchored to the abdominal wall; this fixing of the uterus as gestation advanced, caused it to assume a crescent shape. As soon as I loosened the uterus from its attachment, the point of uterine attachment passed upward and disappeared under the umbilicus.

I lifted the uterus out of the abdomen and surrounded it with sterile towels. I made an incision six inches long in the median line. I readily found the feet and extracted the child with some difficulty, it taking about 20 seconds. The child was dead. It was not weighed, but estimated at twelve pounds. The placenta was found detached. The head and part of the shoulders had passed out of the uterus through a rent. Forceps were placed on the right broad ligament to control hemorrhage, and the rent in the uterus was examined, which was found to be on the right posteriolateral, and extending well down into the vagina, out into the right broad ligament, through the cervix.

I decided to do a celiohysterectomy, because of the extensive laceration. I applied the clamp forceps through the rent, to both the anterior and posterior surfaces of the cervix. The bladder was dissected away, and the uterus quickly removed. The cervix was closed with No. 2 chromoform catgut. The rent in the peritoneum, along the ureter and broad ligament, was closed in tiers, with No. 1.20 day catgut. The ovarian and uterine arteries of the right side were both found to be ruptured. The pressure of the child's head against them prevented fatal hemorrhage before extraction.

Twenty minutes before placing the patient on the table, she was given morphia sulp. gr, ¼, atropia sulph. gr. 1/100. Atropia gr. 1/100 was given at the close of the operation. Four ounces of normal salt and four ounces of strong coffee were given per rectum every three hours. Two quarts of saline solution was introduced under the breasts near the close of the operation. She came off the table nearly pulseless. At no time was she under profound anesthesia. About 300 grams of ether was used. She improved steadily after the second day. No peritonitis developed and no tympany.

The eighth day there was some odor, and I removed through the vagina, a small broad ligament slough. The tenth day, one of the attending physicians, Dr. Whitmir, removed a small slough. A partial separation of the ecrvix, on the right side, took place, but not of the peritoneal surface. Some suppuration of the skin wound took place, lasting about ten days. The patient was doing her own housework within three months. The tenth day urine passed into the vagina, indicating a ureter or the bladder had sloughed, but a later examination proved it to be the ureter.

I am well aware of the aversion you may have toward the repeating of cases in detail, but I feel certain that there is enough of interest to justify such a recital.

CONCLUSIONS. SUTURING THE UTERUS.

1. Catgut may be used for the first row of sutures, leaving the knot in the uterine cavity. The second row of stitches should be of silk or linen. The third row or the serosa stitch should be of silk, linen or fine silkworm gut. All knots tied very tightly, as the alternate relaxation and contraction may untie the knot. It has untied catgut stitches and caused a fatality.

2. The mortality in Cesarean section early, for both mother and child, is lower than by other methods. This should stimulate us to give our patients a more careful examination early, to determine the true condition.

3. Practice pelvimetry on every suspected case or previous difficult labor.

4. Pelvic measurements should be made on all expectant mothers in first gestation.

5. Repeated vaginal examinations are to be condemned, especially in cases where disproportion between mother and children seem to exist.

6. Septic infection in some degree takes place after section in a large per cent. of cases, following attempts at high forceps delivery, and repeated digital examinations.

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MACOUPIN COUNTY.

The Macoupin County Medical Society held its second quarterly meeting in the Masonic Reading Room, Carlinville, July 28, 1908. Dr. J. P. Denby, presided, and Dr. J. Palmer Matthews served as secretary, pro tem. The following members were present: Drs. Denby, Davis, Bell, Collins, J. Pitt and J. Palmer Matthews, C. J. C. Fisher and E. S. Head of Carlinville; Dr. Walton of Medora; Drs. G. E. Hill, R. S. Cowan and R. J. Mitchell of Gerard; Dr. Morgan of Verden; Dr. Morgan of Nilwood; Dr. English of Gillispie, and Dr. Knoop of Chesterfield. The secretary read the report of the last meeting and Dr. Pattison's paper on "The Nostrum and Proprietary Medicine Problem," as published in THE JOURNAL. The regular program, as printed, was continued until the October meeting and the program committee appointed Drs. Knoop and Van Wormer to choose each his own subject for the next meeting. Dr. Collins presented a case of psoriasis. Members present at the American Medical Association meeting in Chicago were reminded of Dr. Zeisler's similar case in the discussion of which Dr. Montgomery of Rush, presented the theory that the condition is due to intestinal toxemia.

After a luncheon at the Central Hotel the society discussed the question of a fee bill and appointed a committee of three to submit one to the next meeting. The committee as appointed is composed of Drs. Fisher, Morgan and English. A letter was read from Dr. Carr regretting her inability to be present because of illness. The society adjourned to meet in Carlinville, October 27.

L. PALMER MATTHEWS, *Sec., pro tem.*

OGLE COUNTY.

The regular quarterly meeting of the Ogle County Medical Society was held at the courthouse, Oregon, Wednesday, July 15, 1908. The meeting was called to order by the President, J. M. Beveridge, of Oregon. Minutes of the previous meeting were read and approved. The roll call found the following members present. Drs. J. C. Akins, J. M. Beveridge, A. H. Beebe, S. D. Houston, W. W. Hanes, J. A. Johnston, J. Krebbs, Louise Keaton, J. T. Kretsinger, J. Pankhurst, J. C. Price, Joseph Riplogle, J. B. Roe, H. H. Sheetz, L. E. Schneider, J. F. Van Voorhes, O. G. Brubaker and C. R. Brigham. Seven new members were elected, viz.: Dr. A. H. Beebe of Stillman Valley, Dr. Royal O. Brown of Forreston, Dr. W. E. Coquillette of Byron, Dr. W. B. Donaldson of Polo, Dr. Louise Keaton of Polo, Dr. Josef Kiplogle of Stillman Valley, and Dr. S. C. Thompson of Byron.

The following officers were duly elected for the ensuing year: President, Dr. J. M. Beveridge, Oregon; vice-president, Dr. J. A. Johnson, Byron; secretary and treasurer, Dr. J. T. Kretsinger, Leaf River; delegate to State Medical Society, Dr. J. M. Beveridge; alternate, Dr. S. D. Houston, Polo; censor, Dr. W. W. Hanes, Mt. Morris.

Dr. J. W. Pettit, Ottawa, Ill., and president of the State Medical Society, gave a pleasing and instructive lecture on "Tuberculosis." Every physician in the county should have been present and listened to this plain and instructive talk on this most dreaded disease. Dr. Pettit laid particular stress on an early diagnosis, treatment and care of the patient years after they were supposed to have been cured of the disease.

The discussion brought out many interesting questions, and Dr. Pettit in his closing remarks answered all questions to the satisfaction of all present.

Dr. J. H. Stealy of Freeport, Ill., gave a short talk on "The Beck Bismuth Treatment of Tuberculous Cavities." The doctor was treating ten or fifteen cases, but not long enough to note much perceptible change, but thought in a few cases there was a little change, or slight improvement. Dr. J. M. Beveridge gave a report on what he observed as delegate to the State Society, after which the society adjourned, to meet at Mt. Morris at the next regular meeting.

WAYNE COUNTY.

The Wayne County Medical Society met at Dr. Bean's office, Thursday, July 16, 1908. The morning session began at 10 a. m. with Dr. W. M. Johnson in the chair. Members present: N. J. Hall, T. J. Hillard, F. Bean, C. O. Truscott, J. L. Young, E. M. Cates, E. E. Roberts, J. P. Walters and W. M. Johnson. Dr. J. T. Blakely, of Mt. Erie, who made application for membership some months ago, was duly elected. M. T. A. McLin, a medical student, was elected an honorary member. Dr. C. T. Hunter, of Springerton, was a visitor at the meeting. Dr. C. O. Truscott read a paper on "Necessity of a Greater Knowledge of Materia Medica," in which he sounded a note of warning to the physicians who are using various compounds in tablets, elixirs and other forms, and labeled "Headache," "Migraine," "Cholera Infantum," "Rheumatism," "Anticonstipation," "Tonsillitis," etc., instead of using their own prescriptions. The paper was discussed by most all present. The subject of "Cholera Morbus" was opened up by Dr. J. J. Hall by giving cause, prevention and treatment in a summary manner which was freely discussed by all present. The subject was closed by Dr. Hall, who answered all criticism to his paper. Adjournment was taken to 1 p. m. at which time Dr. T. J. Hillard read a paper on "Autointoxication." The subject was ably discussed by Drs. Truscott, Hall, Bean and others. The subject of "Dietary Control in Gastrointestinal Diseases" was freely discussed by Drs. Hall, Bean, Roberts, Hunter, Walters and Cates. The paper on "Summer Diarrhea in Children," was discussed by E. E. Roberts and participated in by all present. Dr. C. T. Hunter, of Springerton, was called out on this subject, as well as on the subject of "Congestion." He gave a very interesting and instructive talk for which the society extended to him a vote of thanks. Dr. E. M. Cates reported a very interesting case of chicken-pox contracted before birth. This was one of the most interesting and profitable meetings ever held by this association.

J. P. WALTERS, *Sec.*

NEWS OF THE STATE.

PERSONAL.

Dr. Carl Beck returned from Europe July 27.

Dr. and Mrs. Walter H. Allport have returned from Europe.

Dr. Eugene O. Christoph has resigned from the staff of St. Bernard's Hospital.

Dr. Lewis A. McFadden, Peoria, has recovered and resumed practice after a long illness.

Dr. Clarence, Chicago, has been appointed instructor in physiology at the University of Texas.

Dr. Frank S. Johnson, Chicago, who was recently operated on for appendicitis, has made a complete recovery.

Dr. Edwards L. Kern, Rock Island, has been reappointed medical director of the Modern Woodmen of America.

Dr. Hyman Cohen has been appointed chief disinfector of the health department, vice Dr. Charles W. Behm, deceased.

Dr. William A. Evans has been made professor of sanitary science at Northwestern University Medical School, Chicago.

Dr. Daniel N. Eisendrath, Chicago, has been made professor of surgery in the College of Physicians and Surgeons.

Dr. Joseph C. Dodds, Champaign, has been appointed head physician of the Order of Modern Woodmen of America for Illinois.

Dr. and Mrs. Wellington T. Stewart and their son, Ross, of 978 Douglas boulevard, Chicago, are taking a ten days' trip to Canada.

The degree of D. Sc. was conferred on Dr. John B. Murphy by Sheffield University at the recent meeting of the British Medical Association.

Dr. Thomas J. Sullivan has been made chief of staff, and Dr. Charles P. Caldwell, head of the dispensary, St. Bernard's Hotel Dieu Hospital, Chicago.

Dr. Silas T. Richman, Chicago, was elected supreme physician of the United Order of Foresters, at the annual convention in St. Paul, July 21.

Dr. F. W. Searles, New Lenox, one of the oldest and best known practitioners of Will County, was seriously injured in a runaway accident, August 7.

Dr. and Mrs. William N. Senn, Dr. and Mrs. John B. Murphy, Dr. David F. Monash and Dr. and Mrs. Henry S. Tucker, all of Chicago, have sailed for Europe.

Dr. Frank P. Norbury has recently opened an office at 301 Humboldt Building, St. Louis, Mo. Hours: 11 a. m. to 1 p. m. on the first and third Wednesdays of each month.

Dr. John W. Dreyer, Aurora, has been appointed head physician by the Modern Woodmen, vice Dr. James A. Rutledge, Elgin, who resigned and was subsequently elected national director.

Dr. G. W. Boot announces the opening of an office at 100 State Street, Chicago, for the treatment of the ear, nose and throat. Hours: 12 to 1. Dr. Boot will continue his office at 800 Davis Street, Evanston, as heretofore. Hours: 9 to 11 a. m., 6 to 7 p. m.

Dr. G. G. Craig, Sr., who has been the post surgeon at Rock Island Arsenal for nineteen years, has been commissioned a first lieutenant in the Medical Reserve Corps. The document bears the signatures of President Roosevelt and Secretary of War Luke E. Wright. This is in accordance with the new medical bill, which passed the last congress, increasing the standing of the medical corps and commissioning such surgeons as it was desired to retain.

NEWS ITEMS.

By a baseball game on July 20 more than $1,000 was netted for the Chicago Union Hospital.

C. F. Herlecka, a druggist, arrested, charged with illegally selling cocain, is reported to have been fined $200 and costs.

The new St. James Hospital, Pontiac, erected at a cost of about $100,000, was dedicated July 19 with appropriate ceremonies.

The late Mrs. Eugenia Shumway, Polo, in her will has bequeathed $1,000 each to the Wesley Hospital and the Deaconess' Training School.

The outdoor performance at Ravinia Park last week netted a little more than $1,000 to the funds of the Tribune Summer Hospital, Chicago.

For the first time this year the Isolation Hospital, Chicago, is reported as having no tenant, and it is now undergoing a thorough disinfection.

An addition is to be made to the Hospital of St. Anthony of Padua, Chicago, and will cost $200,000. The principal addition will be a fireproof building 112x50 feet.

It is reported that out of 16,586 children examined by the seventy-nine medical inspectors of the Health Department, Chicago, since July 20 only 281 were found to be ill.

Cook County Hospital is now the owner of the entire block on which the hospital is located. The acquisition was a piece of land 550 feet long and 16 feet wide. The amount paid for it was $9,720.

The Chicago Tuberculosis Sanitarium, at Winfield, will be opened in about six weeks. Dr. Theodore Sachs will head the medical staff. The institution is situated on an elevation fronting the DuPage River, and is being established under the auspices of the women of the Chicago Jewish Club.

The plans for the tuberculosis infirmary on the grounds of Cook County Hospital have been approved by the county board. The building is to be 158x124 feet, five stories in height for the main building and

four stories in height for the wings. The top floor of the former and the roof of the latter are to form sun parlors and exercising grounds for the patients. The building is estimated to cost $300,000 and will accommodate 320 patients.

Mandamus proceedings were begun recently by Joseph William Zeh, a graduate of the National Medical University, a medical night school, of Chicago, 1908, to compel the Illinois State Board of Health to recognize his diploma. The Illinois board, last fall, declared this school was not in good standing. The case was to have been tried in the Superior Court of Cook County, Monday, August 3, and the board was ready, but no one representing the plaintiff appeared.

During July 669 babies under one year of age died in Chicago. The Health Department is of the opinion that probably two-thirds of these deaths could have been avoided, and most of them may be attributed to ignorance and neglect of the parents. The department is now directing the work of seventy-five physicians in the crowded districts of the city in the line of education of mothers in the proper care of their children. It is reported that the most common is the overfeeding and the feeding of improper food.

Charles Alling, Jr., attorney for the State Board of Health, began suit July 27 against five persons, all of Chicago, on charges of practicing medicine without licenses. The defendants are: Pauline Bechtel, 305 Larrabee street, said to have been convicted before on a similar charge; C. J. Uhl, 5937 Halsted street, said to have been convicted before on a similar charge; Francis Langelier, 381 Blue Island avenue.; S. S. Thompson, 3159 Rhodes avenue; H. D. Pattee, Palace Hotel, North Clark and Indiana streets.

The Peoria Association for the Prevention of Tuberculosis, with the aid of the national society, held a tuberculosis exposition at Peoria, July 27 to August 6, inclusive, at which there was an average attendance of nearly seven hundred a day. Each evening lectures were given and lantern slides shown. Among the interesting features were maps showing the location of each death from tuberculosis for the last fifteen years and daily exhibits showing the amount of tuberculous meat condemned at the local slaughter houses by government inspectors. Dr. Sumner M. Miller is president of the society and Dr. Jay H. Bacon secretary.

Dr. William C. French, a graduate of Hahnemann Medical College, of Chicago, in 1906, was arrested by the Illinois State Board of Health, August 1, on the charge of selling a bogus diploma for $75 to Stanislaus M. Kolar, a drug clerk. The diploma bore the name of the Andrew Carnegie University and was signed by "William Gayle French, A.M., M.D., president of the board of trustees; Frederic C. Hanmore, Ph.G., secretary of the faculty, and W. M. Marquardt, B.S., registrar." An institution by the same name was chartered in Illinois, July 31, 1908, but by different persons than those whose names appeared on the diploma.

Sixty students have been enrolled in the summer classes of the Chicago School of Civics and Philanthropy under the auspices of the

Chicago Commons. Of this number twenty-four are attendants in various hospitals for the insane and are studying particularly the methods of rehabilitating the minds of their patients. There are thirty-six in the course of "social agencies of modern cities." In this class the students are learning to become probation or truant officers in reformatory aid societies or settlement workers. The course, which is in charge of Edward Worst, of the Chicago Normal School, gives instruction in the methods of educating the insane and in varieties of recreation and games adapted to the use of such persons.

The Ottawa Tent Colony, on Aug. 2, 1908, was host to eighty physicians and their wives from Chicago. The occasion had been planned by Dr. J. W. Pettit, medical director of the Tent Colony, and he invited all the members of the Chicago Medical Society to join in the excursion to Ottawa on that day. The party left Chicago at 8:30 a. m., and upon their return reached Chicago at 10:30 that night. The weather conditions were unusually favorable for the outdoor entertainments which had been planned. The party was welcomed at the colony by Mayor Hall, of Bugville, who turned over to the company the key to the "City of Lungers." Some three hours were spent in inspecting the equipment and work of the Tent Colony, after which luncheon was served. The party was then taken by boat down the river to Horseshoe Falls, Wildcat Canyon and Starved Rock. Dinner was served at the hotel and the return trip provided on the Interurban Trolley Line to Ottawa. The officers of the Tent Colony were most cordial in their reception and generous in the whole day's entertainment. It combined a few hours' study, with many hours of pleasure and recreation.

With the completion of the quarters to be occupied by the State Psychopathic Institute at the Illinois Eastern Hospital for the Insane, Hospital, an important step has been taken in the matter of the care and treatment of the insane of the state. Dr. H. Douglas Singer is director of the institute, and the scope of the work will be broadened so as to form systematic instruction along the most modern lines of all assistant physicians of insane hospitals in the state. One or two assistant physicians at a time will be sent from each of the eight state institutions to the institute to receive from three to five days' preliminary instruction under Dr. Singer, which will consist in the introduction of the new system of examination and record keeping. After this instruction has been given, Dr. Singer will visit each institution and spend about a week at each; will personally inspect the work that is being done, and make suggestions toward securing uniformity. Following this, a regular course of from four to six weeks, including laboratory work, will be given at the institute. In the equipment of the institute laboratory special attention has been devoted to research and pathologic work and clinical investigation.

The following simple instructions have been set forth in the City Health Department, Chicago, circular on "Hot Weather Care of Children:" 1. Avoid overfeeding. The baby should be fed not oftener than

every three hours through the day and once at night. 2. Avoid improper foods. A child under one year of age must not be given meat, potatoes, pickles, bananas, candy, beer or other solid foods or alcoholic drinks. 3. Avoid impure milk. Feed no dirty or soured milk to the baby. Get only the best milk for babies. None are so poor as to be unable to obtain the best milk, for the Milk Commission of the Children's Hospital Society has established milk stations throughout the congested areas of the city and will supply pure, wholesome milk for sick children at a price below cost. Keep the babies' food clean. Keep the milk cool to preserve it until ready for feeding. Of course, it must be fed warmed and properly prepared. Keep flies away from the babies' food. See that the feeding bottles and rubber nipples are thoroughly scalded each time. Do not use rubber tube—just a nipple—and keep it clean. 4. Avoid "pacifiers." They produce enlarged tonsils and adenoids, and not infrequently are means of infections. 5. Give baby a drink of water. Boil the water first and keep in clean vessels. 6. Avoid heavy clothing. Dress lightly in hot weather. Baby will be better stark naked, except for napkin and binder. 7. Keep baby in open air. Outdoor air, even of a dirty street, is fresher and better than air in the house. Avoid the sun. 8. Give baby a bath. It will stand the heat better if given a bath at least once a day. Bathe before feeding. 9. Let baby sleep alone. See that the crib is screened against flies. 10. Do not drug the baby. If taken sick, call a physician. Midwives are not competent to attend sick children, and "over-the-counter prescriptions" obtained in drug stores are extremely dangerous. Both practices are illegal.

The August 15 issue of the *Journal of the American Medical Association* is the educational number. Considerable expense and time has been given to the accurate assembly of facts and statistics relative to the medical schools in this country. The readers of THE JOURNAL will be especially interested in the summary of the Illinois Medical Schools:

Illinois, population 5,418,670, has thirteen medical colleges, four of which are night schools, all located in Chicago, a city of 2,049,185, and are as follows: Rush Medical College, Northwestern University Medical School, College of Physicians and Surgeons, Hahnemann Medical College, Bennett College of Eclectic Medicine and Surgery, Hering Medical College, Jenner Medical College, College of Medicine and Surgery, National Medical University, Chicago College of Medicine and Surgery, and Reliance Medical College.

Rush Medical College.—This school was founded in 1837, organized in 1843, was the medical department of the Lake Forest University from 1887 to 1898, when it became affiliated with the University of Chicago. The first class graduated in 1844. The faculty is composed of 83 professors, 155 associates, instructors, etc., a total of 238. The requirements for admission are a four-year high school education, and, in addition thereto, two years of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. The course covers four years of nine months each. An optional fifth year, consisting of a hospital interneship or of a fellowship in one of the departments is offered. All freshman and sophomore studies are given at the University of Chicago. The last two years are given in the clinical buildings at the corner of Wood and Harrison streets. The total fees are $180 each year. A matriculation fee of $5 is paid but once, and there are incidentals amounting to from $2 to $5 annually. The Deans are Dr. Frank Billings, 100 State street, and

Dr. M. Dodson, 34 Washington street. Total registration for 1907-08 was 586; graduates, 70. The sixty-sixth fiscal year begins July 1, 1908.

Northwestern University Medical School, Dearborn street, between Twenty-fourth and Twenty-fifth streets. Organized in 1859 as the Medical Department of Lind University. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken. The faculty comprises 150 professors and 83 lecturers and assistants, a total of 233. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University plus one year of college work in physics, chemistry, biology and modern languages. The course covers four years of thirty-six weeks each. The fees are $175 each year. A matriculation fee of $5 is paid but once. The secretary is Dr. Charles Louis Mix. The total registration for 1907-8 was 533; graduates, 135. The forty-ninth year begins Oct. 6, 1908, and ends about June 15, 1909.

College of Physicians and Surgeons, Honore and Congress streets.—Organized in 1882. The first class graduated in 1883. It became the Medical Department of the University of Illinois in 1896. The faculty is composed of 42 professors, 156 assistants and instructors, a total of 198. The fees are $145 each for the first two years; $150 for the third, and $175 for the fourth. The Dean is Dr. William E. Quine, 103 State street. Total registration for 1907-8 was 501; graduates, 146. The twenty-seventh session begins Oct. 1, 1908, and ends June 9, 1909.

American Medical Missionary College, 888 Thirty-fifth Place.—Organized in 1895. The first class graduated in 1899. The faculty numbers 27. The course covers four years of nine months each. Total fees are $80 for each of the four years. The Secretary is Dr. E. L. Eggleston, Battle Creek, Mich. Total registration for 1907-08 was 42; graduates, 4. The fourteenth session opens Sept. 15, 1908, and closes June 15, 1909.

Chicago College of Medicine and Surgery, 333 South Lincoln Street.—Organized in 1901 as the American College of Medicine and Surgery (Chicago Eclectic Medical College). The latter part of the name was dropped in 1902 when it became the Medical Department of the Valparaiso University. Eclecticism was dropped in 1905. The name was changed to the above in 1907. The course covers four years of eight months each. The faculty consists of 52 professors and 18 lecturers and assistants; total of 70. The annual tuition fee is $100; matriculation fee, $5. The total registration for 1907-08 was 325; graduates, 70. The eighth session begins Sept. 29, 1908, and ends May 18, 1909. The Secretary is Dr. J. N. Roe.

Hahnemann Medical College and Hospital of Chicago, 2811 Cottage Grove Avenue.—Organized in 1859. The first class was graduated in 1861. The Registrar is Dr. W. Henry Wilson. The total registration for 1907-08 was 117; graduates, 43. Forty-ninth session begins Sept. 21, 1908, and ends May 15, 1909.

Hering Medical College, Homeopathic, Wood and York Streets.—Organized in 1892. The first class graduated in 1893. The Dean is Dr. H. C. Allen. The total registration for 1907-08 was 58; graduates, 16.

Illinois Medical College, corner Washington Boulevard and Halsted Street.—It was organized in 1894. Classes were graduated in 1895 and in all subsequent years. The faculty consists of 38 professors and 20 lecturers and assistants, a total of 58. The course covers four years of seven months each. The fees are about $125 each year. The Dean is Dr. B. B. Eads. The total registration for 1907-08 was 531; graduates, 30. The fourteenth session begins Sept. 2, 1908, and ends April 29, 1909.

Bennett College of Eclectic Medicine and Surgery, Fulton and Ada Streets.—Organized in 1868. The first class graduated in 1870. The faculty numbers 52. The course covers thirty weeks each. Fees for each year are $100, with a matriculation fee, paid once, of $5. The President is Dr. John D. Robertson. The total

registration for 1907-08 was 150; graduates, 28. The next session begins Sept. 22, 1908, and ends May 24, 1909.

College of Medicine and Surgery, Physio-Medical, 370 South Wood Street.—Organized in 1885 as the Chicago Physio-Medical Institute. The first class graduated in 1886. In 1891 the name was changed to the Chicago Physio-Medical College. In 1899 it took its present name. The Secretary is Dr. William F. Schaare. The total registration for 1907-08 was 35; graduates, 3. The next session begins Sept. 23, 1908, and ends May 15, 1909.

Jenner Medical College, a night school, located at 196 Washington Street.—Organized in 1892. Classes were graduated in 1896 and in all subsequent years. Registrar, Dr. J. Zabokrtsky. Total registration for 1907-08 was 175; graduates, 32. The Illinois State Board of Health reports that this college is not in good standing.

National Medical University, a night school, located at 531 Wells Street.—Organized in 1901 as the National Homeopathic Medical College. The first class was graduated in 1902. In 1895 the word "Homeopathic" was dropped. It took the above name in 1900. Registration for 1907-08 was 123. The Dean is Dr. L. D. Rogers. The Illinois State Board of Health reports that this school is not in good standing.

Reliance Medical College, a night school, located at Washington Boulevard and Halsted Street.—Organized in 1907. Registration for 1907-08 was 62. No graduates. The President is Dr. J. F. Burkholder. The Illinois State Board of Health reports that this school has not been placed in good standing.

MEDICAL SOCIETY NOTES.

Champaign County Medical Society has sent a petition to the Board of Trustees of the University of Illinois, expressing regret at the resignation of Dr. George T. Kemp, formerly professor of physiology in the university, and asking that the board will endeavor to secure his return.

The Stephenson County Medical Society held its annual meeting July 16 and elected the following officers: President, Dr. A. F. Kober, McConnell; vice-president, Dr. D. C. L. Mease, Freeport; secretary, Dr. J. Sheldon Clark, Freeport; censor, Dr. Smith C. Thompson, Cedarville; delegate, Dr. W. J. Rideout, and Dr. D. C. L. Mease, alternate. They are also arranging to change the fiscal year to correspond with that of the State Society.

PUBLIC HEALTH.

The State Board of Health has issued a 32-page circular on "The Care of the Baby," which is being distributed in all parts of the state. The circular, which deals with the feeding and care of infants and selections and modification of cows' milk, gives clear, succinct directions to mothers as to diet and care of the baby, the selection, modification and preparations of the food, and numerous health and comfort hints of especial value in the summer season. A chapter is also devoted to suggestions to dairymen and milk dealers, including the state laws regulating dairying.

The Department of Health of Chicago has prepared for distribution and posting throughout the districts in which the highest infant death rate is reported the following card of warning regarding the milk for babies:

FEED NO DIRTY MILK TO YOUR BABIES.

See to it that bottles or cans from which your supply is served are clean.

Milk as food for infants should be CLEAN as well as PURE. This means that you should note the condition of milk wagons and depots.

If for any reason you suspect your milk supply, bring sample in original package to the City Laboratory, fourth floor, 215 East Madison street. If the store, dairy, wagon or can is dirty, write us.

DEPARTMENT OF HEALTH, City of Chicago.

MARRIAGES.

CLINTON J. HANCOCK, M.D., Greenup, Ill., to Miss Minnie Wood, of Casey, Ill., July 29.

CLARENCE NICHOLAS MCCUMBER, M.D., to Miss Iva Maud Rice, both of Lewis, Ill., June 30.

GEORGE WILLIAM CLARKE, M.D., to Miss Mabel Whitford Aylesworth, both of Roseville, Ill., July 18.

CHARLES B. DIRKS, M.D., LaGrange, Ill., to Miss Alice A. Thompson of Madison, Wis., August 1.

BERNHART L. RIESE, M.D., Chicago, Ill., to Miss Clara Freund, of Vienna, Austria, at Chicago, July 18.

MELVILLE C. K. LITTLE, M.D., East Carroll, Ill., to Miss Lucille Harrer, of Niles Center, Ill., June 27.

EDWARD MILTON BRON, M.D., Chicago, Ill., to Miss Harriet Chamberlain Drew of Brooklyn, N. Y., August 11.

DEATHS.

JOHN A. CARLSTEIN, M.D., Chicago Homeopathic Medical College, 1882; of Ravenswood, Chicago; died at Charlevoix, Mich.

GROSVENOR B. CADY, M.D., Physio-Medical College, Cincinnati, 1864; of Chicago; died in the Home for Incurables in that city, July 18.

GEORGE B. HAMLIN, M.D., Chicago Homeopathic Medical College, 1893; died at his home at Frankfort Station, Ill., after a lingering illness, July 2, aged 42.

WILLIAM ZIMMERMAN, M.D., University of Wurzburg, Germany, 1863, for many years a practitioner of Quincy, died at his home in that city, July 27, aged 67.

JOSEPH B. RANDLESON, M.D., St. Louis Medical College, 1878; died at his home in East Galesburg, Ill., from paresis, after an illness of six years, July 18, aged 73.

ALVIN G. FRITCHE, M.D., Rush Medical College, Chicago, 1901; of Black Hawk, Wis.; died at the Augustana Hospital, Chicago, July 13, five weeks after an operation for appendicitis, aged 30.

ELIJAH A. LYON, M.D., Hahnemann Medical College and Hospital of Chicago, 1880; College of Physicians and Surgeons, Chicago, 1898; of Chicago; died in Ottawa, Ill., July 14, after a short illness, aged 53.

GEORGE E. WEST, M.D., Long Island College Hospital, Brooklyn, 1885; of Rock Island, Ill.; chief of the record department and actuary of the Modern Woodmen of America; died in St. Anthony's Hospital, Rock Island, Ill., July 21, a week after an operation for appendicitis, aged 46.

FRANK CATLIN GREENE, M.D., Jefferson Medical College, 1880; University of Heidelberg, Germany, 1883; a member of the American Medical Association; president and later treasurer of Truax, Greene & Company, Chicago; died at his home in Chicago, July 27, after an illness of one year, aged 51.

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